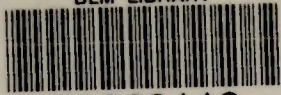


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RANCHING IN THE SAN JUAN BASIN

A REPORT ON THE ROLE OF PUBLIC LANDS IN THE LOCAL ECONOMY AND
THE IMPACTS OF PROPOSED NEW GRAZING MANAGEMENT PROGRAMS

Prepared for the:
Albuquerque District Office
Bureau of Land Management
U.S. Department of the Interior
Albuquerque, New Mexico

June 1980



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1.0 INTRODUCTION

1.0 INTRODUCTION

The Bureau of Land Management, an agency of the U.S. Department of the Interior, is considering alternative plans for the future management of public lands in northwestern New Mexico under its administration. These alternatives are fully described in the San Juan Grazing Environmental Statement being prepared by the Albuquerque District Office of the Bureau of Land Management (BLM). Harbridge House, Inc., a consulting firm with offices in several cities, including Denver, was asked by BLM to examine the potential effects of proposed allotment management plans (AMP's) in its San Juan Planning Unit on the ranching population and other residents of communities in the area. The following sections contain preliminary results of that analysis.

The San Juan Planning Unit is located in a portion of northwestern New Mexico which includes parts of Rio Arriba, Sandoval and San Juan Counties. The unit is bounded by Colorado on the north, Jicarilla Apache Indian Reservations on the west, and the BLM's Chaco Planning Unit on the south and west. The boundary between the Chaco and San Juan Planning Units is approximately a line parallel to but west of New Mexico Highway 44 until it comes within five miles of the San Juan River; at which point the line turns west, parallel to the river until it reaches the limit of the Navajo Indian Reservation.

The San Juan Planning Unit contains about 1,429,951 acres, of which 981,772 acres, or 69 percent, are public land held by the federal government, 122,284 acres are owned and managed by the State of New Mexico, 27,695 acres are Indian land (chiefly held by the Navajo Nation), and 298,200 acres are privately owned. The Farmington Resource Area Office, in BLM's Albuquerque District, administers development and use of 946,844 acres of the public land. Livestock grazing has traditionally represented the predominant use of this land. In 1978, grazing allotments in the San Juan Planning Unit contained 926,909 acres, of which 240,409 were being managed under 15 Allotment Management Plans (AMP's). The remaining acreage was subject to no such plans.

2.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

2.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

2.1 Definition of Study Area

The proposed action and its alternatives would directly affect 185 permit-holders who can presently graze livestock on allotments in the San Juan Planning Unit. In addition, a grazing management program in the planning unit would indirectly affect other residents of the communities in which these permit-holders live, as changing levels of ranch production prompt changes in overall employment, income, and quality of life. The region in which these direct and indirect impacts of the proposed action and its alternatives would be felt is larger than the San Juan Planning Unit itself. An estimated 71.6 percent of ranch operators grazing cattle, horses, sheep and other livestock in the planning unit live in San Juan County, New Mexico, including some who reside in areas south and west of the planning unit's boundaries. Approximately 20.7 percent of the permit-holders are residents of western Rio Arriba County, New Mexico, including a few in parts of the county east of the planning unit. Another 5.9 percent live in southwestern Colorado, chiefly in LaPlata County. Only four permit-holders are reported to live outside these areas. Consequently, this socioeconomic analysis examines a special study region comprising San Juan and Rio Arriba Counties, New Mexico, and LaPlata County, Colorado. This region contains 98.2 percent of all permit-holders.

This three-county area forms a distinct socioeconomic unit. The physical distances which separate this region from the principal population centers in New Mexico or Colorado, together with the rugged topography, have helped to create what has been labeled a "natural community" centered upon Farmington, New Mexico, the area's largest city and most important marketplace (Eastman and Romanek, 1975). Livestock ranching has been a basic economic activity here for more than a century, and has played an integral role in the social development of the area, as well. The three counties contain most of the upper basin of the San Juan River, and within this basin ranching operates on a seasonal basis, herds moving in late spring to mountain pastures, and returning them in late autumn to the

desert range of the Colorado Plateau or to the irrigated farmlands along the Animas, La Plata, and San Juan Rivers. Consequently, within the ranching sector, relationships between the parts of the region on either side of the Colorado-New Mexico state line are strong. In other sectors of the regional economy, and in the lifestyles of local inhabitants, similar ties persist. The association of the two sides of the state border is suggested by the way long-time residents refer to San Juan County as the "lower country" in contrast to the "upper country" of La Plata County.

Basic data for this analysis was obtained from the files of the Farmington Resource Area Headquarters of the BLM. These files supplied information on authorized and actual grazing levels, and on identities and addresses of permit-holders. Additional data were collected by Harbridge House, Inc., in conversations which its personnel had with 42 permit-holders during November, 1979. These interviews verified data of the Economics, Statistics and Cooperatives Service (ESCS) of the U.S. Department of Agriculture on ranch operations, costs and returns, and also provided information on characteristics of the ranching population. Secondary data for the three-county area was obtained from state and county governments, the Navajo Nation, and other sources. Because BLM files contain information only for allotments in the planning unit, data regarding other aspects of the operations of permit-holders had to be developed on the basis of the field work undertaken by Harbridge House. It is possible that the size of some large ranches has been under-estimated, particularly those utilizing range lands in Colorado. However, all available data suggest that the description below of ranching in the region surrounding the San Juan Planning Unit is generally correct. Individual ranches, of course, will have specific features which occasion their conditions to vary from the average described here.

2.2 Demographics of the Study Region

In 1978, an estimated 128,400 persons inhabited La Plata, Rio Arriba, and San Juan Counties. As shown in Table 2.1, 58.3 percent of the residents of the three counties lived in San Juan County. Rio

TABLE 2.1

POPULATION, THREE-COUNTY AREA, 1950-1978

<u>County</u>	Population ^a <u>1950</u>	Population ^b <u>1960</u>	Population ^b <u>1970</u>	Population ^{c,d} <u>1980</u>
La Plata	14,880	19,225	19,199	25,400
Rio Arriba	24,997	24,193	25,170	28,200
San Juan	18,292	53,306	52,517	74,800
Three-County Area	58,169	96,724	96,886	128,400

Sources: ^aU.S. Department of Commerce, Bureau of the Census, Census of Population: 1950, Characteristics of the Population, Washington, D.C., 1952.

^bU.S. Department of Commerce, Bureau of the Census, Census of Population: 1970, Characteristics of the Population, Washington, D.C., 1973.

^cProvisional estimates for La Plata County supplied by the Job Service of Colorado, Division of Employment and Training, 1979.

^dProvisional estimates for San Juan and Rio Arriba Counties supplied the the University of New Mexico, Bureau of Business and Economic Research, 1979.

Arriba County accounted for 22.0 percent of the regional population, and La Plata County, 19.7 percent. The populations of all three counties have been growing since 1950, with San Juan County recording the largest increase of more than 56,500 persons over the 28-year period. Most of this growth has been concentrated in the vicinity of Farmington and the nearby incorporated municipalities of Aztec, Bloomfield, and Kirtland. ^{not} ~~incorp.~~ In 1978, Farmington was estimated to have a population of 30,910, while the other three communities had a total of 7,790 residents. An estimated 4,000 people lived in nearby unincorporated areas like Flora Vista and Fruitland. Altogether, the population of Farmington, its environs, Aztec, Bloomfield and Kirtland accounted for one-third of all the inhabitants of the three-county area. The only other major population center in the region was Durango, in La Plata County, with approximately 12,600 residents in 1978.

Outside these few principal cities and towns, the San Juan Basin is sparsely populated. In 1978, the three-county area had an average of 9.7 persons per square mile, and in unincorporated areas, the population density was 4.6 persons per square mile. (The national average exceeds 60.) Rural hamlets and crossroads communities are located throughout the planning unit and the region, but none have a population greater than 300. Some are long-established around post offices, schools, and trading posts. Others have recently developed along pipelines and highways. The most important of these places are Arboles, Blanco, Cedar Hill, Counselor, La Plata, Largo Station, Lybrook, Nageezi, Riverside and Waterflow. The populations of a few of these communities have increased sharply since 1970 with the immigration of English-speaking (or Anglo) residents due to expanded exploration for and drilling of oil and gas. In other parts of the region, principally to the south and west, the relatively high birth rates among Navajo inhabitants have naturally increased populations. However, in many rural areas, there is neither much oil and gas activity, nor many large Navajo settlements, and the size of communities has remained constant or gradually declined. Overall, population densities remain low and little changed over several

decades, reflecting the physical constraints placed on further development by the arid desert conditions which characterize the San Juan Basin.

The three-county area is populated by three distinct cultural groups, drawn from different ethnic or racial stocks. In the division of its population between Anglos, Hispanos and Indians, the region resembles other parts of the American Southwest (Meinig, 1971). Indian tribes first settled in the San Juan Basin, although the Anasazi, builders at Aztec and Mesa Verde, disappeared by the fourteenth century. The Navajo moved into the area more than four centuries ago, and many maintain traditional, pastoral lifestyles both on the reservation and in the adjacent, so-called "Checkerboard" tribal lands (Beck, 1962). Other, less populous Indian groups in the region include the Jicarilla Apache, who were limited to their present reservation in the late nineteenth century, and the Southern Ute and Ute Mountain tribes, who occupy reservations in southern Colorado (Gunnerson, 1974; van Roekel, 1971). Hispanic colonists from the Rio Grande Valley reached the San Juan Basin in the mid-nineteenth century. This group settled the hilly, western portions of Rio Arriba County where many of their descendants still live (Pioneer Association of San Juan County, New Mexico, 1976; Widdison, 1959). Anglo farmers, a large number of them Mormon, also arrived in the area in the 1840's and 1850's, establishing Farmington and other settlements. Subsequent mining activity in the San Juan Mountains encouraged further Anglo immigration, and the growth of Durango and nearby towns. This migration has continued in recent years with development of oil and gas fields, and coal and uranium mines (Koogler and Whitney, 1972; MacDonald and Arrington, 1970). As shown in Table 2.2, Anglos now constitute more than half of all the inhabitants of the three-county area, but large Hispanic and Indian minorities persist.

2.3 Characteristics of the Ranching Population

In 1978, the households of ranch operators having grazing permits for allotments in the San Juan Planning Unit had an estimated 1,070 members. This ranching population consisted of both the immediate

TABLE 2.2
 POPULATION BY RACIAL OR ETHNIC BACKGROUND,
 THREE-COUNTY AREA, 1978

<u>County</u>	<u>Anglo</u>	<u>Hispanic</u>	<u>Indian</u>	<u>Other</u>	<u>Total</u>
La Plata	18,805	4,950	1,560	85	25,400
Rio Arriba	3,785	19,965	4,370	85	28,200
San Juan	41,960	5,160	27,000	680	74,800
Three-County Area	64,545	30,075	32,930	850	128,400

Source: Estimates by Harbridge House, Inc. using definitions of racial and ethnic group based on primary language spoken as point of differentiation with information from the 1970 census.

families of permit-holders and their employees (or, in the case of corporations and partnerships, of principal owners and their employees), and of the estimated 90 families which utilize allotments held in the name of the Navajo Nation. Data collected by Harbridge House, Inc., in its conversations with operators suggested that less than a fifth of these ranchers depended on ranching for more than 50 percent of household income, and most ranch employees worked on a part-time or seasonal basis. Therefore, the definition of what will be termed here the "ranching population" to include all households with individual operators holding permits or using or working on an allotment is a broad one and the figure of 1,070 persons represents the upper limit or the number of persons who might be directly affected by the proposed action and its alternatives. The majority of this population, 710 persons, was estimated to live in San Juan County, 225 live in Rio Arriba, and 65 in La Plata. In the three-county area, this number of people represents 0.8 percent of the total population. The relative significance of the ranching population is greatest in San Juan County, where it accounts for 0.9 percent of all residents.

As shown in Table 2.3, the ranching population is more significant when compared to the population of rural parts of the three-county area. However, an increasing number of ranch operators live in urban areas in the region, and commute to and from their ranches and allotted range lands. Therefore, the ranching population is probably less important in rural areas than is suggested in Table 2.3. In addition, many ranchers perceive that their numbers are steadily diminishing, partly because of the effects of recent drought on grazing levels, partly because of new requirements imposed by the federal government, and partly because of pressures of rising costs and competition with other ranching areas. A few operators have abandoned ranching; many more have cut back their herd sizes, and taken jobs off the ranch. Approximately one in four of the ranchers contacted by Harbridge House in field work believed that the ranching population had diminished because of the weakening ranch economy, and that as a result, residents were becoming dependent on sources of employment and income in urban

TABLE 2.3

RANCHING POPULATION, THREE-COUNTY AREA
AND RURAL AREAS, 1978

<u>County</u>	<u>Ranching Population</u> ^{a,c}	<u>Rural Popu- lation</u> ^{b,c}	<u>Ranching Population Percent</u>	<u>Total Population</u> ^d	<u>Ranching Population Percent</u>
La Plata	65	12,800	0.5	25,400	0.2
Rio Arriba	225	22,700	1.0	28,200	0.8
San Juan	710	32,100	2.4	74,800	0.9
Three-County Area	1,000	67,600	1.6	128,400	0.8
Outside Three- County Area	70				
Total	1,070				

Notes: ^a Ranching population includes all households directly related, but not necessarily primarily dependent on, ranching in the San Juan Planning Unit.

^b Rural population excludes populations of Aztec, Bloomfield, Durango, Espanola, Farmington and environs, and Kirtland.

Sources: ^c Harbridge House, Inc., estimate, 1980.

^d Provisional estimates as given in Table 2.1.

areas and industrial sectors. Household sizes among the ranching population are still nearly one and a half times the national average, but most young adults from ranch families seek off ranch jobs and many leave the region entirely--especially Anglos. Ranch operators are relatively old, compared to the working population as a whole, averaging around 55 years of age, and often see little likelihood that their ranches will survive another generation. Many long-time Anglo ranchers see themselves as an "endangered species" while Hispanic and Indian operators tend to be somewhat less pessimistic (Jobes, 1979).

The ranching population is characterized by the same three groups as the general population. However, the proportional size of these groups varies considerably from the former to the latter. Indians, mostly Navajo, were estimated to represent more than half of the members of households tied to grazing use of public lands in the San Juan Planning Unit, compared to only 25.6 percent in the general population. The relatively large number of Navajo among the ranching population reflects the persistence of many Indian families in traditional, pastoral lifestyles. Navajo livestock operations are usually in the non-commercial size group (less than 74 AU's), and the average number of AU's per Indian operator in the planning unit is estimated to be less than ten. Most of the Navajo in the ranching population live at or below federal poverty levels, with subsistence level ranching providing meat for household consumption and barter for use at nearby trading posts. By contrast, average herd sizes among the relatively smaller Anglo and Hispanic groups in the ranching population are much larger. Anglos make up 25.0 percent of permit-holders, their families and other persons directly tied to grazing use of public lands in the planning unit. The average number of AU's per Anglo operator is 95. Hispanos are 23.4 percent of the total; ranches of Hispanic operators have an average of 53 AU's. As shown in Table 2.4, Anglos represent a disproportionately small percentage of the ranching population, relative to their size in the general population, but own a majority of the livestock.

The three groups in the ranching population are characterized by distinct, if still related, sets of attitudes and values. For a century, all residents of the San Juan Basin (with the exception of the

TABLE 2.4

RANCHING POPULATION BY RACIAL OR ETHNIC BACKGROUND,
THREE-COUNTY AREA, 1978

<u>Racial/ Ethnic Group</u>	<u>Members in Ranching Population</u>	<u>Percent of Ranching Population</u>	<u>Animal Units Controlled^a</u>	<u>Percent of Animal Units</u>
Anglo	250	25.0	7,380	61.6
Hispanic	234	23.4	3,000	25.0
Indian	516	51.6	1,600	13.4
Three-County Area	1,000	100.0	11,980	100.0
Outside Three- County Area	70			
Total	1,070			

Note: ^a Figures have been rounded, and may vary from totals of ranch-by-ranch estimates used in ranch size class tables.

Source: ^b Harbridge House, Inc., estimate, 1980.

inhabitants of the mining boom towns) shared in a primarily agrarian lifestyle. Each group maintained a large measure of independence of the other two groups, and separate languages, religious traditions, and political and social relationships have survived. Recent minerals development in the three-county area, however, has resulted in the immigration of Anglos from outside the San Juan Basin. At the same time, small-scale and subsistence ranching has become less economic, leading more native residents of all backgrounds to migrate to the few urban areas in search of work. These trends have brought the three cultures into greater contact and occasional conflict. The predominance of Anglos in the cities has intensified pressures on Hispanos and Indians to conform to alien, Anglo lifestyles and value systems. Such pressures are also experienced by native Anglos from rural, ranching families who perceive that the Anglo majority in places like Farmington exhibit attitudes and values very different from their own.

Anglos in the ranching population are almost entirely made up of native Coloradans and New Mexicans who have lived in the San Juan Basin for more than 80 percent of their lives. By contrast, four out of every five Anglo inhabitants of the three-county area generally have moved into the region in the past three decades. Members of native Anglo ranch families share an outlook which emphasizes the importance of individual independence, self-sufficiency, and equality, but resents government regulation, urban interdependence, and occupational hierarchies. Ranching is considered to be a basic industry (together with other kinds of agriculture and mining) on which human progress and economic prosperity depend. Ranching lifestyles appear based on hard work and asceticism, while urban living is believed to emphasize leisure and materialism (Vogt, 1955; Fleigel, 1976). In this way, ranch work is felt to be natural and moral, whereas many jobs and activities in cities are seen to be artificial and decadent. Although few native-born Anglos are still able to support themselves and their families by ranching alone, many continue to hold onto ranches while having off-ranch jobs. Identity as a rancher, and daily connection with

ranching--if only with ranch scenes--are highly prized. When asked to identify what they chiefly valued about their present way of life, Anglo ranchers tended to mention the opportunities to work and live with their families in a ranch setting, to spend so much time out-of-doors and in direct relationship to nature, and to control their own lives and businesses. Table 2.5 shows these data.

Hispanos share many of the same attitudes and values of Anglos in the ranching population, although they exist in somewhat different context. In conversations with Harbridge House interviewers, members of Hispanic ranching families emphasized the importance of living with their family in proximity to relatives and long-time friends, of a sense of community they felt with other Hispanics in the area, and of ranching lifestyles as both attractive and natural. Indians exhibit a very different set of lifestyles from Anglos and Hispanos, and many of their fundamental beliefs appear to differ also. For example, the Navajo traditionally emphasize the idea of harmony between man and nature, such that they do not feel the confidence Anglo ranchers often show in improving or controlling their natural environment. The perceived key to survival is to accept and live with nature rather than change or manage it (Witherspoon, 1974). The common basis for doing so is to acknowledge the primacy of family and clan ties, and to live as an integral part of these larger units (Bureau of Indian Affairs, 1976). Nonetheless, the attitudes and values expressed by members of Indian ranching families included mention of many of the same values stressed by Anglos and Hispanos: the importance of family, clan or community, of living outdoors or close to the natural environment, of being independent or self-sufficient.

Despite poor financial returns from ranching--in many cases among the Navajo, despite poverty--ranchers and members of their families choose to persist in ranching lifestyles, and accept a measure of material deprivation in order to enjoy the well-being they derive from ranch living (Smith and Martin, 1975). Many ranchers see the federal government--and specifically the Bureau of Land Management--as being

TABLE 2.5
VALUES OF GROUPS IN THE RANCHING POPULATION
THREE-COUNTY AREA

<u>Values Mentioned</u>	<u>Percent of Each Group Making Mention</u>		
	<u>Anglo</u>	<u>Hispano</u>	<u>Indian</u>
Family	55	47	25
Clan or community	34	40	86
Land or physical environment	23	18	86
Climate or ability to work outdoors	30	18	0
Independence or self- sufficiency	23	23	8

Source: Harbridge House, Inc., based on interviews with ranch operators.

actively opposed to the maintenance of their distinctive lifestyles. This perception is greatest among native Anglos, for whom some of the attractiveness of ranching is being offset by the active role which government is taking in overseeing and regulating their business. More than three-quarters of the ranch operators and members of their families interviewed by Harbridge House expressed anxiety and alarm about recent actions taken by BLM and other federal agencies. Among Anglo and Hispanos ranchers, this anxiety was partially a result of fears relating to the Navajo-Hopi Land Exchange, but partially a result of concern about new allotment management plans. Among the Navajo, there was a general distrust of outside, decision-making which would affect the use and distribution of local resources.

2.4 Characteristics of the Regional Economy

In 1978, an estimated 46,729 persons were employed full-time at locations in the three-county area. Full and part-time jobs at ranches with allotments in the San Juan Planning Unit represented less than 0.6 percent of this total, and the total number of all full-time jobs in the agricultural sector constituted only 2.2 percent. The distribution of employment by economic sector is shown in Table 2.6. In the same year, an estimated \$440 million dollars in total personal income was generated by the regional economy. Ranch operations which might be affected by the proposed action and its alternatives supplied less than 0.3 percent of this total, while the agriculture sector as a whole contributed 1.5 percent to total personal income. The distribution of total personal income is given in Table 2.7. Mining is the most important, so-called "basic," sector in the regional economy, while trade, services and government constitute major sources of employment and income among secondary sectors. In 1978 and 1979, unemployment was low (under 7 percent) in cities and among Anglos, but high (over 10 percent) in rural areas and among Hispanics and Indians.

Despite the rapid development of a regional economy with a minerals resource-base and a focus on Farmington and its environs, many residents of the San Juan Basin live with little relationship to modern

economic institutions and structure. Among rural, traditional Navajo, an agrarian autarky persists. These Indians are employed chiefly in subsistence ranching and handicrafts making, such as have been practiced for two centuries or more (Nagel, 1974). Except when these residents make a special trip into town, they take their trade to local trading posts, whose operators continue in a century-old role as merchants, bankers and brokers (Federal Trade Commission, 1973). For this portion of the population, the trader is the principal link between traditional and modern economic orders.

As the data in Tables 2.6 and 2.7 suggest, the agricultural sector in general, and ranching in particular, make a relatively small contribution to the overall economic structure in the San Juan Basin. As a result, inter-industry links to ranching are weak and the amount of employment and income indirectly dependent on ranch production is small (less than 2 percent of either total). However, in rural areas and among certain groups, like the Navajo, ranching has an importance disproportionate to its economic value, insofar as it supports the continuance of long-established communities and lifestyles.

2.5 Economics of Ranch Operation

Ranching has been a basic element of the economy of the San Juan Basin for more than a century. In recent decades, ranching and agriculture in general have been surpassed in regional importance by mining and related activities. However, in rural parts of the three-county area, ranching is still locally important. Public lands are a key factor in this ranching. Ranchers with allotments in the San Juan Planning Unit depend on public lands for an estimated half of livestock forage, as shown in Table 2.8. However, this dependence is even greater than the figures suggest. Most grazing permits cover a period of less than one year, frequently four months, six months, or eight months. During the periods for which grazing permits are issued, public lands in the planning unit account for two-thirds of

TABLE 2.6

FULL-TIME EMPLOYMENT, THREE-COUNTY AREA, 1978

<u>Economic Sector</u>	<u>La Plata County^a</u>	<u>Rio Arriba County^b</u>	<u>San Juan County^b</u>	<u>Total</u>
Agriculture	199	332	475	1,006
Ranching in Planning Unit ^c	20	57	198	275
Manufacturing	629	282	1,469	2,380
Mining	47	54	2,989	3,090
Construction	550	253	4,820	5,623
Transportation, Communications & Utilities	418	267	3,230	3,915
Trade	2,324	1,097	5,621	9,042
Finance, Insurance & Real Estate	332	193	785	1,310
Services	2,678	1,385	7,318	11,381
Government	2,165	2,359	4,458	8,982
Total	9,342	6,222	31,165	46,729

Sources: ^aU.S. Department of Commerce, Bureau of Economic Analysis, regional economics information system, 1979.

^bNew Mexico Employment Security Commission, Research and Statistics Division, Table B - labor information series, 1979.

^cHarbridge House, Inc., estimate, 1980.

TABLE 2.7

TOTAL PERSONAL INCOME, THREE-COUNTY AREA, 1978
(in thousands of 1978 dollars, as estimated)

<u>Economic Sector</u>	<u>La Plata County^a</u>	<u>Rio Arriba County^a</u>	<u>San Juan County^a</u>	<u>Total</u>
Agriculture	2,500	1,265	2,815	6,580
Ranching in Planning Unit ^b	26	71	246	343
Manufacturing	7,770	2,225	13,890	23,885
Mining	1,330	1,050	48,640	51,020
Construction	8,990	3,020	46,275	58,285
Transportation, Communications & Utilities	7,895	3,245	44,795	55,935
Trade	20,080	7,270	40,455	67,805
Finance, Insurance & Real Estate	4,180	1,680	7,155	13,015
Services	26,210	13,890	29,070	69,170
Government	25,000	22,355	46,650	94,005
Total	103,955	56,000	279,745	439,700

Sources: ^aHarbridge House, Inc., based on information supplied by U.S. Department of Commerce, Bureau of Economic Analysis, regional information system, 1979.

^bHarbridge House, Inc., estimate on basis of interviews with ranch operators.

TABLE 2.8

DEPENDENCY ON PUBLIC LANDS IN SAN JUAN PLANNING UNIT,
BY RANCH SIZE GROUP, 1978

<u>Ranch Type^a</u>	<u>Size Group^b</u>	<u>Number of Ranches^c</u>	<u>Number of AUM's^d</u>	<u>Percent Dependent During Permit^e</u>	<u>Percent Dependent Year-Long^f</u>
Cattle	All	199	126,558	66	49
	Subsistence	168	39,332	65	55
	Small Commercial	17	21,701	60	50
	Medium Commercial	8	26,557	67	42
	Large Commercial	6	38,968	69	48
Sheep	All	61	18,829	68	62
All	All	260	145,387	66	51

Notes: ^aIn cases of mixed operations, ranch types determined on the basis of the type having the largest number of animals. Horses classified with cattle, goats with sheep.

^bSize groups defined as 1-74 AU's (Subsistence); 75-174 AU's (Small Commercial); 175-349 AU's (Medium Commercial; and 350 and more AU's (Large Commercial).

^cNumbers include estimates of operators using community and tribal allotments.

^dAUM's shown are authorized levels on public lands, together with private and state AUM's.

^eDependency during periods for which permits are issued, up to twelve months.

^fDependency on annualized basis.

Source: Harbridge House, Inc., estimate, 1980.

livestock forage. In general, smaller ranching operations are more dependent on public lands. As shown in Table 2.8, cattle ranchers with fewer than 75 AU's rely on federal range for 55 percent of livestock forage, whereas those with 175 and more AU's depend on such range for less than half of their needs. The greater degree of dependency reflects the large number of subsistence size operators who hold permits for eight months' use or more, while medium and large commercial size ranchers commonly operate on public lands for shorter seasons, and have access to more private and state land at other times. During permit periods, percent dependency varies little by type of ranch. However, overall, local sheep growers depend more on public lands than cattlemen, 62 percent compared to 49 percent.

Ranch operators making use of allotments in the San Juan Planning Unit have small herds, except for the twenty largest operators. An estimated 85 percent of the cattlemen run fewer than 75 cattle year-round. Approximately 92 percent of the sheepgrowers have fewer than 370 sheep. The average herd size for cattle ranches is 48. On sheep ranches, herds average 123 sheep in size. Costs, receipts, and returns for both types of operators vary significantly by size, but few ranchers in the San Juan Basin are large enough to be profitable in business terms. Table 2.9 shows typical costs, receipts and returns for operations with allotments in the planning unit. Typically, livestock sales from these ranches cover operating costs, although among subsistence size operators the margin is only \$160 annually. But when costs of depreciation allowance and insurance expenses are considered, typical ranches show losses and these losses are deepened when some provision is made for the cost of the operators' time in managing the ranch business. Percent return on investment, as shown in Table 2.9, is negative in all size groups and ranch types, ranging from an annual loss of 18 percent among operations with fewer than 75 head, to a loss of 1.2 percent among operations with 350 head or more. In fact, interviews with ranchers in the three-county area indicate that most ignore depreciation, and regard net cash income as their ranching profits.

TABLE 2.9

TYPICAL COSTS, RECEIPTS AND RETURNS FOR LIVESTOCK RANCHES
USING PUBLIC LANDS IN PLANNING UNIT, BY SIZE

1978

Budget Item	Cattle Ranches						Average, All Types
	Subsistence Size	Small Commercial Size	Medium Commercial Size	Large Commercial Size	Average, All Sizes	Sheep Ranches	
Livestock Sales	\$ 1,610	\$13,445.00	\$35,480.00	\$76,715.00	\$ 6,245	\$2,875.00	\$ 5,455
Operating Costs	1,450	11,305.00	25,980.00	48,180.00	4,685	2,580.00	4,190
Net Cash Income	160	2,140.00	9,500.00	28,535.00	1,560	295.00	1,265
Ownership Costs ^a	950	7,555.00	17,865.00	34,945.00	3,220	1,700.00	2,865
Net Business Income	(790) ^c	(5,415.00)	(8,365.00)	(6,410.00)	(1,660)	(1,415.00)	(1,600)
Overhead & Management Costs ^b	3,380	6,760.00	8,095.00	9,275.00	4,035	5,070.00	4,280
Final Business Profit	(4,170)	(12,175.00)	(16,460.00)	(15,685.00)	(5,695)	(6,485.00)	(5,880)
Capital Investment	\$23,140	\$206,350	\$518,610	\$1,272,580	\$96,380	\$68,250	89,780
Percent Return on Investment	(18.0)	(5.9)	(3.2)	(1.2)	(5.9)	(9.5)	(6.5)

Notes: ^a Ownership Costs include depreciation of capital investment, insurance, and interest expense.

^b Overhead and Management Costs include return to operator for his labor at minimum wage, and overhead on business costs.

^c Parentheses indicate negative values.

Source: Harbridge House, Inc., estimate.

When existing equipment must be replaced or new investment made, ranch operators typically borrow against the value of their ranch to finance the required expenditure, or transfer savings from other income sources, in effect subsidizing their ranch activities. Persistence in ranching clearly reflects a noneconomic commitment to ranch work and ranch lifestyles. In a sense, ranchers earn non-monetary rewards from being able to live or work on their ranches, and these rewards are compensation for some of all of their business losses and foregone income.

Table 2.10 indicates estimated total costs, receipts and returns from livestock ranches using public lands in the San Juan Planning Unit. As shown, sales of livestock from these ranches were approximately \$1,418,550 in 1978, with 87.6 percent of that total coming from sales of cattle ranches and the remainder from sales of sheep growers. Net cash income equaled \$328,465. If this amount is treated as personal income, as most ranchers do, it represents an average of \$1,265 per operator, or \$325 per capita in the ranching population. These low numbers reflect the relatively large number of Navajo in and near the planning unit who depend on public lands to support their subsistence lifestyles, which traditionally have been associated with incomes below federal poverty levels. Even among large commercial size operators, however, incomes are comparatively low. Net cash income is estimated at \$171,210 total in this size group of cattle ranches, or more than \$28,000 per operator. But such large operations must make some provision for depreciation and other such costs, possibly making less than half that amount available to ranchers and their families as personal income. Consequently, it is necessary to ranchers in all size groups to supplement earnings from livestock sales with off-ranch income. Table 2.11 shows the percent of total personal income obtained in this way by size group. These figures were estimated on the basis of information received in the Harbridge House conversations with ranchers. Operators with fewer than 75 cattle depended on ranching for an average of only 19 percent of their income, drawing on farming for 12 percent and other sources for 69 percent. By contrast, large operators relied on cattle ranching for 97 percent of

TABLE 2.10

TOTAL COSTS, RECEIPTS AND RETURNS FOR LIVESTOCK RANCHES USING PUBLIC LANDS
IN PLANNING UNIT, BY SIZE

Budget Item	Cattle Ranches						Sheep Ranches	All Types
	Subsistence Size	Small Commercial Size	Medium Commercial Size	Large Commercial Size	All Sizes			
Livestock Sales	\$270,480	\$228,565	\$283,840	\$460,290	\$1,243,175	\$175,375	\$1,418,550	
Operating Costs	243,600	192,185	207,840	289,080	932,705	157,380	1,090,085	
Net Cash Income	26,880	36,380	76,000	171,210	310,470	17,995	328,465	
Ownership Costs ^a	159,600	128,435	142,920	209,670	640,625	103,700	744,325	
Net Business Income	(132,720) ^c	(92,055)	(66,920)	(38,460)	(330,155)	(86,705)	(415,860)	24
Overhead & Management Costs ^b	567,840	114,920	64,760	55,650	803,170	309,270	1,112,440	
Final Business Profit	(700,560)	(206,975)	(131,680)	(94,110)	(1,133,325)	(394,975)	(1,528,300)	
Capital Investment	\$3,877,795 (18.0)	\$3,507,950 (5.9)	\$4,148,880 (3.2)	\$7,635,480 (1.2)	\$19,180,105 (5.9)	\$4,163,250 (9.5)	\$23,343,355 (6.5)	

Notes: ^aOwnership Costs include depreciation of capital investment, insurance, and interest expense.

^bOverhead and Management Costs include return to operator for his labor at minimum wage, and overhead on business costs.

^cParentheses indicate negative values.

Source: Harbridge House, Inc., estimate.

TABLE 2.11

PERCENT OF PERSONAL INCOME FROM RANCHING, FARMING AND OTHER SOURCES, ESTIMATED FOR
OPERATORS USING PUBLIC LANDS IN PLANNING UNIT, BY SIZE GROUP, 1978

Sources of Income	Cattle Ranches					Sheep Ranches	All Ranches
	Subsistence	Small Commercial	Medium Commercial	Large Commercial	All		
Ranches	19	43	64	97	31	60	38
Farming	12	17	0	0	14	0	11
Other Sources	69	40	36	3	55	40	51
Total	100	100	100	100	100	100	100
							25

Source: Harbridge House, Inc., estimate based on interviews with ranch operators, 1980.

their income. The average for all sizes and types of ranches derived 38 percent of personal income from ranching. This figure, and the average net cash income shown in Table 2.9, suggest an average income for operators of approximately \$3,500. Given the low levels of income reported for rural Navajo--averaging near \$3,000 per head of household in 1977--this figure apparently reflects Indian poverty.

In the face of the poor economic returns from their ranching activities, many ranch operators must borrow against the value of their ranches to support themselves, their families, and any necessary new investment. In addition, seasonal demands for cash require some borrowing. For both reasons, the value of the ranch as it is generally recognized by the market--by both borrowers and, more important, lenders--is critically important to any operator. In recent years, values have risen with the rising cost of land and the limited availability of AUM's. For many ranch families, appreciation in ranch value represents the only kind of profit they have been able to make, and this increased value contains their chief savings from years of labor. In the San Juan Basin, the commonly accepted method of valuing ranches for loans is on the number of AUM's the operator possesses, either on his own land or, through grazing permits, on public lands. The loan value assigned per AUM was between \$40 and \$50, according to local ranchers. Because of uncertainty over federal plans for grazing management on public lands, this value has begun to fall. However, in 1978, the price per AUM was still in this range, and consequently, ranches with use of public lands in the San Juan Planning Unit could borrow on a loan valuation of \$6.5 million. Figures on the total volume of loans outstanding on the security of ranches having federal AUM's are not available, but the amount is certainly in the millions of dollars. Previous studies of levels of financing activity in connection with similar types of ranching suggest that the value of such loans would fall into the range of \$2.2 to \$4.6 million (Vanvig, 1975; Peryam and Olson, 1975).

2.6 Community Infrastructure

As the population of the three-county area has increased, government activities and public services have been expanded to meet rising demand. However, the larger amounts of spending which have been required have not been large enough, and, despite new facilities and programs, some deterioration in quality of life has resulted. Traffic congestion, deficient road systems, housing shortages, overcrowding of schools, overloading of water and sanitary systems, increased rates of crime and disorder are all problems which residents in different parts of the region mentioned in an earlier survey (Harbridge House, Inc., 1978). However, as shown in Table 2.12, many governments in the San Juan Basin have budgetary deficits, and hence limited ability to deal with these problems. In 1978-79, budget deficits are expected by many governments.

TABLE 2.12

LOCAL GOVERNMENT EXPENSES AND REVENUES, BUDGETED FOR FISCAL YEAR 1978-79
(in the millions of dollars, as budgeted)

<u>Level of Government</u>	<u>La Plata County</u>		<u>Rio Arriba County</u>		<u>San Juan County</u>	
	<u>Expenses</u>	<u>Revenues</u>	<u>Expenses</u>	<u>Revenues</u>	<u>Expenses</u>	<u>Revenues</u>
County	2.3	1.7	3.1	2.0	6.9	5.8
School District	2.4	2.4	1.8	1.7	46.8	37.1
Municipal	1.2	1.2	1.0	1.0	27.1	34.3
All	5.9	5.3	5.9	4.7	80.8	77.2

Source: Harbridge House, Inc., estimates based on local budgets.

3.0 ASSESSMENT OF ADVERSE AND BENEFICIAL IMPACTS

3.0 ASSESSMENT OF ADVERSE AND BENEFICIAL IMPACTS

3.1 Definition of Time Frames

The proposed action (and its alternatives) would represent programs of the BLM which would be undertaken over a period of years in order to meet the particular objectives described in Chapter 1. Consequently, it is important to distinguish three time periods during which direct and indirect impacts on social and economic conditions would occur. The so-called "short-term" would constitute the period in which initial adjustments in permitted levels of grazing on public lands would be made. This period would fall in the early 1980's. Subsequently, as vegetative treatments and capital improvements were made on public lands, grazing levels would rise. This period would occupy most of the 1980's and 1990's, and is labelled below the "program interval." In the "long-term," range conditions would have been improved such that all objectives have been met, and grazing levels and other uses of public lands have reached the optimum point. This point would fall in 2000, although specific objectives might be met earlier. In the following assessment of direct and indirect socioeconomic impact from alternative plans, short-term and long-term conditions are outlined in detail. During the program interval, short-term conditions would be altered in progressive stages until they approximated long-term conditions. The annual rate of this change is unknown, but, for the purposes of this assessment, it has been assumed that this rate would be constant.

3.2 The Proposed Action

In the 1980's and 1990's, the populations of La Plata, Rio Arriba, and San Juan Counties are projected to grow substantially, and neither the proposed action, nor any of its alternatives, would change the rate of this growth. Within the three-county area, the ranching population is too small in relative size to have the potential to affect the size of the general population. Moreover, despite the significant economic impacts of the proposed action, no in- or out-migration of residents,

nor changes in rates of natural increase in the region are expected to be associated with projected short- and long-term changes in ranch production, employment and income. In isolated, rural areas, unincorporated hamlets and crossroads communities might experience some instability in population levels as businesses and services catering to ranch operators and their families experience short-term reductions in values. However, revitalization of the ranching economy during the program interval would build values back up to 1978 levels by the early 1990's, and would promote long-term and business expansion and population growth. In particular, projected expansion of ranching activity and investment among Indian operators would lead to accelerated population growth in the vicinity of Counselor, Lybrook, and Nageezi. In these areas, relatively large Navajo communities already support several trading posts and other enterprises, whereas in other parts of the three-county area, residents of predominantly Anglo and Hispano rural communities tend to do almost all their business by driving to the nearest city or town. However, throughout the region, any population impacts of the proposed action would be slight, and would be indistinguishable from the much more significant effects of regional energy resource development. In particular areas for which coal mines are now planned--such as La Plata and Nageezi--energy development could be of such a magnitude as to lead to wholesale transformation of rural communities.

The ranching population was estimated at 1,070 in 1978. With the proposed action, this total would increase slightly in both the short-term and the long-term. Table 3.1 shows the projected, short-term change in average herd sizes of ranches dependent on public lands in the San Juan Planning Unit. What in 1978 were small, medium and large commercial size cattle ranches would all experience reductions in the average number of AU's per ranch. These drops would range from 0.4 to 12.5 percent of 1978 herd sizes. But what were, in the same year, subsistence size cattle ranches, as well as sheep ranches of all sizes, would have significant increases in the average number of AU's per ranch. For the former, the gain would be more than 21 percent; in the case of the latter, herd sizes would grow by about a third. Overall, the

TABLE 3.1

CHANGE IN AVERAGE HERD SIZES OF RANCHES DEPENDENT
ON PUBLIC LANDS IN SAN JUAN PLANNING UNIT,
1982, WITH PROPOSED ACTION

<u>Ranch Type^a</u>	<u>Size Group^b</u>	<u>Number of Ranches^c</u>	<u>Average Herd Size, 1978^d</u>	<u>Average Herd Size, 1982^e</u>	<u>Percent Change, 1978-1982^f</u>
Cattle	All	199	48	48	0
	Subsistence	168	14	17	21.4
	Small Commercial	17	112	98	(12.5) ^g
	Medium Commercial	8	268	267	(0.4)
	Large Commercial	6	525	478	(9.0)
Sheep ^h	All	61	25	33	32.0
All	All	260	43	44	2.3

Notes: ^aIn cases of mixed operations, ranch types determined on basis of the type having the largest number of animals. Horses classified with cattle, goats with sheep.

^bSize groups defined as 1-74 AU's (Subsistence); 75-174 AU's (Small Commercial); 175-349 AU's (Medium Commercial); and 350 and more AU's (Large Commercial).

^cNumbers reflect distribution by size in 1978.

^dAverage herd size based on actual, reported sizes in 1978 and do not reflect unused authorized AUM's.

^eAverage herd size based on authorized levels with proposed action.

^fChange shown from actual, not authorized, 1978 averages.

^gParentheses indicate negative values.

^hSheep shown in AU's: 5 sheep to 1 AU.

Source: Harbridge House, Inc., estimate.

average number of AU's per ranch would rise from 43 to 44, an increase of 2.3 percent. As a result of this growth, as shown in Table 3.2, the distribution of livestock ranches by size group would shift, with a larger number of large commercial ranches by 1982.

With this expansion, there would be hiring of an additional 3-4 ranch workers, which would occasion a short-term increase in the ranching population of 12 to 16 persons, or just over 1 percent. The long-term population increase would be more significant. Overall, the average number of AU's per ranch would rise to 55, a gain of 27.9 percent over the 1978 figure. By the end of the century, increases in average herd sizes would be recorded in all ranch types and size groups, ranging from 13.9 percent for large commercial size cattle ranches to 57.1 percent among subsistence size cattle ranches. Table 3.3 shows these changes. The growth indicated for the period 1978-2000 would be a direct result of increased carrying capacities on public lands due to the proposed action. With expanded operations, the distribution of ranches by size group would be altered, with 8 fewer of subsistence size, but with one additional small commercial, 2 more medium commercial, and 5 new large commercial ranches. This long-term impact of the proposed action is shown in Table 3.4. Associated with this trend toward expanded ranch operations would be the hiring of 10 to 12 ranch workers, increasing the ranching population by 40 to 48 persons, or approximately 4 percent.

Such growth in ranch activity and consequently in the ranching population would reverse the decline of both in recent years. Increased ranch activity might permit more children of operators and their employees to remain near their homes in the three-county area by taking jobs in ranching and related sectors. It might diminish the dependence of the rural, ranching population on sources of employment and income in urban areas and industrial sectors. It might strengthen communities in unincorporated areas which are based in part on the spending of ranch operators and ranch households. In so doing, it might diminish the rate at which the population of rural parts of the three-county area has been shrinking in relative size, compared to the population of urban parts.

TABLE 3.2

CHANGE IN SIZE GROUP DISTRIBUTION OF RANCHES DEPENDENT
ON PUBLIC LANDS IN PLANNING UNIT, 1982,
WITH PROPOSED ACTION

<u>Ranch Type^a</u>	<u>Size Group^b</u>	<u>Number of Ranches, 1978</u>	<u>Percent Distribu- tion by Size Group, 1978</u>	<u>Number of Ranches, 1982</u>	<u>Percent Distribu- tion by Size Group, 1982</u>
Cattle	All	199	100	200	100
	Subsistence	168	84	166	82
	Small Commercial	17	9	18	9
	Medium Commercial	8	4	9	5
	Large Commercial	6	3	7	4
Sheep	All	61	100	61	100
	Subsistence	56	92	55	90
	Small Commercial	3	5	3	5
	Medium Commercial	2	3	1	2
	Large Commercial	0	0	2	3
All	All	260	100	261	100
	Subsistence	224	86	221	85
	Small Commercial	20	8	21	8
	Medium Commercial	10	4	10	4
	Large Commercial	6	2	9	3

Notes: ^aIn cases of mixed operations, ranch types determined on basis of the type having the largest number of animals. Horses classified with cattle, goats with sheep.

^bSize groups defined as 1-74 AU's (Subsistence); 75-174 AU's (Small Commercial); 175-349 (Medium Commercial); and 350 or more AU's (Large Commercial).

Source: Harbridge House, Inc., estimate.

TABLE 3.3

CHANGE IN AVERAGE HERD SIZES OF RANCHES DEPENDENT
ON PUBLIC LANDS IN SAN JUAN PLANNING UNIT,
2000, WITH PROPOSED ACTION

<u>Ranch Type^a</u>	<u>Size Group^b</u>	<u>Number of Ranches</u>	<u>Average Herd Size, 1978^d</u>	<u>Average Herd Size, 2000^e</u>	<u>Percent Change, 1978-2000^f</u>
Cattle	All	199	48	61	27.1
	Subsistence	168	14	22	57.1
	Small Commercial	17	112	127	13.4
	Med. Commercial	8	268	328	22.4
	Large Commercial	6	525	598	13.9
Sheep	All	61	25	36	44.0
All	All	260	43	55	27.9

Notes: ^aIn cases of mixed operations, ranch types determined on basis of the type having the largest number of animals. Horses classified with cattle, goats with sheep.

^bSize groups defined as 1-74 AU's (Subsistence); 75-124 AU's (Small Commercial); 175-349 AU's (Medium Commercial); and 350 or more AU's (Large Commercial).

^cNumbers reflect distribution by size in 1978.

^dAverage herd size based on actual, reported sizes in 1978 and do not reflect unused, authorized AUM's.

^eAverage herd size based on authorized levels with proposed action.

^fChange shown from actual, not authorized, 1978 averages.

^gParentheses indicate negative values.

Source: Harbridge House, Inc., estimate.

TABLE 3.4

CHANGE IN SIZE GROUP DISTRIBUTION OF RANCHES DEPENDENT
ON PUBLIC LANDS IN PLANNING UNIT,
2000, WITH PLANNED ACTION

<u>Ranch Type^a</u>	<u>Size Group^b</u>	<u>Number of Ranches, 1978</u>	<u>Percent Distribu- tion by Size Group, 1978</u>	<u>Number of Ranches, 2000</u>	<u>Percent Distribu- tion by Size Group, 2000</u>
Cattle	All	199	100	201	100
	Subsistence	168	84	163	80
	Small Commercial	17	9	20	10
	Medium Commercial	8	4	9	5
	Large Commercial	6	3	9	5
Sheep	All	61	100	61	100
	Subsistence	56	92	55	90
	Small Commercial	3	5	1	2
	Medium Commercial	2	3	3	5
	Large Commercial	0	0	2	3
All	All	260	100	262	100
	Subsistence	224	86	218	83
	Small Commercial	20	8	21	8
	Medium Commercial	10	4	12	5
	Large Commercial	6	2	11	4

Notes: ^aIn cases of mixed operations, ranch types determined on basis of the type having the largest number of animals. Horses classified with cattle, goats with sheep.

^bSize groups defined as 1-74 AU's (Subsistence); 75-174 AU's (Small Commercial); 175-349 (Medium Commercial); and 350 or more AU's (Large Commercial).

Source: Harbridge House, Inc., estimate.

However, the extent to which this expected growth would have any of these effects, at least for members of the present ranching population, depends on the manner in which the proposed action is implemented. As discussed further below, increases in herd sizes would represent gains from actual, 1978 levels, but most ranch operations would experience large cuts from authorized grazing levels in the same year. The market value of ranches is in part a function of the number of federal AUM's to which ranch operators are entitled (but which they do not necessarily use). To the extent that the proposed action diminishes ranch values by cutting authorized grazing levels, it could upset the financing arrangements of many ranching families. Insofar as these families were to suffer significant, short-term economic hardship as a result of these cuts, and thus incur additional debt or actually enter bankruptcy, the benefits described above would be deferred, or would accrue to a changed ranching population. This population would have changed to include many new purchases of ranch properties, who would be more likely to be oriented towards urban areas, and to share in the attitudes and values of in-migrant groups. If the proposed action is implemented with a minimum of economic hardship and financial uncertainty, the present ranching population and the heirs of these families could be expected to receive most of the benefits of a revitalized ranch economy and of strengthened rural communities.

The proposed action would have the greatest impact on Anglos in the ranching population. This group includes a disproportionately large number of commercial ranchers and their families, in other words, persons who are economically tied to ranch operations with more than 74 AU's. As shown in Table 3.1, these ranches would experience significant short-term cuts in permitted levels of livestock grazing. The proposed action would thereby reduce herd sizes by up to the average of 12.5 percent for small commercial size cattle ranches as well as sharply diminish the market values, and the ability to borrow, of these ranch operations. During the program interval, planned range improvements and vegetative treatments would increase carrying capacities on public lands, and permit expansion of livestock herds. By the early 1990's,

1978 grazing levels would have been restored. In the long-term, commercial ranches would expand in size by 13.4 to 22.4 percent. However, the short-term dislocation would be severe, and might lead long-established Anglo ranching families to discontinue ranch operations. Contacts with ranch operators who would be affected indicate that while half have avoided incurring long-term debt obligations, more than a quarter are heavily indebted. Approximately eight to ten ranches would be put in financial jeopardy by the short-term effects of the proposed action. The families connected with these operations would be unlikely to be able to persist in ranching, and the enjoyment of ranch lifestyles, at least in the short-term. Family members would have to try to find other sources of employment, income and satisfaction. Most members of the ranching population, however, are neither attitudinally adjusted to industrial, commercial occupations and urban living, nor have they been trained in marketable job skills. Adjustments to short-term dislocation of the ranching economy would probably be disruptive and difficult.

Regardless of the practical consequences of the proposed action, ranch operators and members of their families would be likely to resent government plans insofar as they appear to interfere with and impose upon ranch family life. Ranchers, especially Anglo ranchers, emphasize the importance of basic values of independence and self-sufficiency. The proposed action would subject ranch operations to a greater measure of external oversight and regulation than is presently the case. Consequently, many ranchers presently perceive that their traditional freedom, the feature of ranching most valued, would be undermined. In this sense, the hostility of ranch operators, family members, and other rural neighbors toward government plans stems as much from the idea of federal intervention in ranch management as from specific impacts which result from that management. Ranchers also have a perception that the bureaucrats and officials who administer range programs do not necessarily come from ranching backgrounds, and do not share or readily understand the basic values or lifestyles of the ranching population. The proposed action therefore appears to them to be a product of an alien, urban culture. The extent

to which the distinctive set of ranch values and lifestyles survives the short-term dislocation of the ranching economy would probably be dependent on the degree to which traditional attitudes of the ranching population can be altered to accommodate the concept of multiple resource management and the fact of expanded government regulation.

Hispanos and Indians, who make up the majority of subsistence size ranch operators and their families, would benefit from the proposed action insofar as short-term adjustments to permitted grazing levels would increase average herd sizes of Hispanic and Indian ranchers by an average of 3 AU's. In the long-term, the average number of AU's per operator would be increased by 8 AU's. For subsistence size operations, these gains would have a significant impact by increasing ranch production and income, reducing the extent of rural poverty and the need for part-time, off-ranch employment. The proposed action would encourage the persistence of traditional, pastoral lifestyles among the Navajo at a time when large-scale energy resource development in the region is threatening a transformation of rural, Indian life. The proposed action would also support the continuance of rural, agrarian occupations of Hispanos, although this group is more fully integrated into the modern, industrial economy of the San Juan Basin than the Indians, and would continue to be so. For both cultures, the proposed action would have the effect of strengthening the independence and integrity of the particular ethnic or racial group and its traditions, by adding to the resources under the control of group members and lessening their dependence on Anglo-dominated sources of employment and income. The projected gains for Hispanos and Indians would not be so large as to alter the fundamental relationships in the communities, nor to eliminate present disparities between standards of living in these groups and in the general population.

The proposed action would have a negligible impact on total employment and income in the three-county area. The direct impacts on the number of jobs in ranching would represent less than 0.1 percent of the total number of jobs, while the direct impacts on the amount of personal earnings from ranch operations would be less than 0.1 percent of

the total number of jobs, while the direct impacts on the amount of personal earnings from ranch operations would be less than 0.1 percent of total personal income. Direct impacts are described fully in the next section. Direct impacts on employment and income would be relatively insignificant. In the short-term, the projected total increase in livestock production by ranches with allotments in the San Juan Planning Unit would create an additional four full-time jobs outside ranching. In the long-term, 12 additional jobs would be created, of which six would be in manufacturing due to hiring in the food-processing and meat-handling industry, three would be in agricultural services and the production of feed, and three would be in other sectors. The low "multiplier" effect of direct impacts on employment and income overall reflects the business conditions which characterize ranching in the San Juan Basin. At present, ranches are generally not profitable as businesses and most ranch operators have poor incomes from their ranching efforts. Projected increases in ranch production would improve profitability and enlarge net cash returns, but a large portion of the gain would be taken by ranch businesses to finance needed purchases of replacement animals, new equipment, and further improvements, and to cover business expenses. Such expenditures often flow out of the region, to manufacturers and producers elsewhere, more so than personal spending and savings.

In increasing ranching activity in the long-term, the proposed action would be significantly beneficial to the ranching subsector of the regional economy. However, it would also cut authorized (rather than actual) levels of livestock grazing on public lands in the San Juan Planning Unit and consequently could cause significant damage to ranch finances and to lending institutions. For several ranch types and sizes 1982 projected grazing levels would be above 1978 actual levels, and for all ranch types and sizes projected grazing levels in the year 2000 would be well above actual grazing levels reported in 1978. The effect of reducing the number of authorized federal AUM's would be to reduce the apparent dependency on public lands of ranches with allotments in the planning unit. In the short-term, this public lands dependency would range from 51 percent of all livestock forage in 1978 to 45 percent in 1982. The percent dependencies by type and size of ranch in the short-term are given in Table 3.5. With gradual increases in carrying capacities of public lands during the program interval, the

TABLE 3.5

DEPENDENCY ON PUBLIC LANDS IN SAN JUAN PLANNING
UNIT BY RANCH SIZE GROUP, 1982,
WITH PROPOSED ACTION

<u>Ranch Type^a</u>	<u>Size Group^b</u>	<u>Number of Ranches^c</u>	<u>Number of AUM's^d</u>	<u>Percent Dependent During Permit^e</u>	<u>Percent Dependent Year-long^f</u>
Cattle	All	199	100,296	57	42
	Subsistence	168	32,721	58	49
	Small Commercial	17	18,633	53	44
	Medium Commercial	8	21,041	58	36
	Large Commercial	6	27,901	57	40
Sheep	All	61	17,902	66	62
All	All	260	118,198	58	45

Notes: ^aIn cases of mixed operations, ranch types determined on the basis of the type having the largest number of animals. Horses classified with cattle, goats with sheep.

^bSize groups defined as 1-74 AU's (Subsistence); 75-174 AU's (Small Commercial); 175-349 AU's (Medium Commercial); and 350 or more AU's (Large Commercial).

^cNumbers reflect distribution by size in 1978.

^dAUM's shown are authorized levels with proposed action.

^eDependency during periods for which permits are issued, up to twelve months.

^fDependency on annualized basis.

Source: Harbridge House, Inc., estimate.

average percent dependency of ranches would rise to 49 percent by 2000. The long-term dependencies of livestock ranches using allotments in the planning unit are shown in Table 3.6. Because subsistence size cattle ranches and sheep ranches would not experience significant long-term cuts from present, authorized levels of federal AUM's, these operations would have the same dependency in 2000 as in 1978, 55 and 62 percent, respectively. Commercial cattle ranches of all sizes would be less dependent on public lands in the long-term than they are at present. This change indicates a shift in the way in which use of public range lands in the San Juan Planning Unit would be apportioned. With the proposed action, the share of commercial cattle ranches in total federal AUM's in the planning unit would be sharply reduced, from 60 in 1978 to 56.5 percent by the year 2000, while the share of subsistence size cattle ranches would be increased from 26.6 to 28.8 percent, and the share of sheep ranches, most of which are subsistence size operations, would also grow, from 13.3 to 14.7 percent.

This redistribution of range resources, from commercial operations to subsistence size ranches is especially evident over the short-term, and is shown in the typical ranch budgets given in Table 3.7. With the proposed action, the net cash income of a typical subsistence size cattle ranch would rise from the \$160.00 estimated for 1978 to \$200.00 in 1982, a gain of 25.0 percent. Over the same period, the net cash income of a typical sheep ranch, which in the planning unit was characterized by only 25 AU's in 1978 and thus was also of subsistence size, would increase from \$295.00 in 1978 to \$420.00 in 1982, a 42.4 percent rise. By contrast, the net cash income of a typical small commercial size cattle ranch would fall by \$380.00, or 17.8 percent, and the income of a typical large commercial size cattle ranch would drop by \$5,250.00, or 18.4 percent. The net cash income of a typical medium commercial size cattle ranch would be unchanged. The cumulative effect of these different impacts on the various types and sizes of ranches utilizing public lands is shown for 1982 in Table 3.8. Overall, livestock sales would increase by \$27,690 from 1978, but net cash income to ranch operators would decline by

TABLE 3.6

DEPENDENCY ON PUBLIC LANDS IN SAN JUAN PLANNING
UNIT BY RANCH SIZE GROUP, 2000,
WITH PROPOSED ACTION

<u>Ranch Type^a</u>	<u>Size Group^b</u>	<u>Number of Ranches^c</u>	<u>Number of AUM's^d</u>	<u>Percent Dependent During Permit^e</u>	<u>Percent Dependent^f Year-long</u>
Cattle	All	199	118,902	64	48
	Subsistence	168	39,263	65	55
	Small Commercial	17	21,309	59	49
	Medium Commercial	8	24,824	65	41
	Large Commercial	6	33,506	64	45
Sheep	All	61	19,734	69	63
All	All	260	138,636	64	49

Notes: ^aIn cases of mixed operations, ranch types determined on the basis of the type having the largest number of animals. Horses classified with cattle, goats with sheep.

^bSize groups defined as 1-74 AU's (Subsistence); 75-174 AU's (Small Commercial); 175-349 AU's (Medium Commercial); and 350 and more AU's (Large Commercial).

^cNumbers reflect distribution by size in 1978.

^dAUM's shown are authorized levels with proposed action.

^eDependency during periods for which permits are issued, up to twelve months.

^fDependency on annualized basis.

Source: Harbridge House, Inc., estimate.

TABLE 3.7

TYPICAL COSTS, RECEIPTS AND RETURNS FOR LIVESTOCK RANCHES
USING PUBLIC LANDS IN PLANNING UNIT, BY SIZE
1982, WITH PROPOSED ACTION (in 1978 Dollars)

Budget Item	Cattle Ranches						
	Subsistence Size	Small	Medium	Large	Average, All Sizes	Sheep Ranches	Average, All Types
		Commercial Size	Commercial Size	Commercial Size			
Livestock Sales	\$1,955.00	\$11,690.00	\$35,480.00	\$67,035.00	\$6,095.00	\$3,820.00	\$5,569.00
Operating Costs	1,755.00	9,930.00	25,980.00	43,750.00	4,695.00	3,400.00	4,390.00
Net Cash Income	200.00	1,760.00	9,500.00	23,285.00	1,405.00	420.00	1,170.00
Ownership Costs ^a	950.00	7,555.00	17,865.00	34,945.00	3,220.00	1,700.00	2,865.00
Net Business Income	(750.00) ^c	(5,795.00)	(8,365.00)	(11,660.00)	(1,815.00)	(1,280.00)	(1,690.00)
Overhead & Management Costs	3,380.00	6,760.00	8,095.00	9,275.00	4,035.00	5,070.00	4,280.00
Final Business Profit	(4,130.00)	(12,555.00)	(16,460.00)	(20,935.00)	(5,850.00)	(6,350.00)	(5,970.00)
Capital Investment	\$23,140	\$206,350	\$518,610	\$1,272,580	\$96,380	\$68,250	\$89,780
Percent Return on Investment	(17.8)	(6.1)	(3.2)	(1.6)	(6.1)	(9.3)	(6.6)

Notes: ^aOwnership Costs include depreciation of capital investment, insurance, and interest expense.

^bOverhead & Management Costs include return to operator for his labor at minimum wage, and overhead on business costs.

^cParantheses indicate negative values.

Source: Harbridge House, Inc., estimate.

TABLE 3.8

TOTAL COSTS, RECEIPTS AND RETURNS FOR LIVESTOCK RANCHES
USING PUBLIC LANDS IN PLANNING UNIT, BY SIZE
1982, WITH PROPOSED ACTION (in 1978 Dollars)

Budget Item	Cattle Ranches						Sheep Ranches	All Types
	Subsistence Size	Small Commercial Size	Medium Commercial Size	Large Commercial Size	Total, All Sizes			
Livestock Sales	\$ 328,440	\$ 198,730	\$ 283,840	\$ 402,210	\$ 1,213,220	\$	233,020	\$ 1,446,240
Operating Costs	294,840	168,810	207,840	262,500	933,990		207,400	1,141,390
Net Cash Income	33,600	29,920	76,000	139,710	279,230		25,620	304,850
Ownership Costs ^a	159,600	128,435	142,920	209,670	640,625		103,700	744,325
Net Business Income	(126,000) ^c	(98,515)	(66,920)	(69,960)	(361,395)		(78,080)	(439,475)
Overhead & Management Costs	567,840	114,920	64,760	55,650	803,170		309,270	1,112,440
Final Business Profit	(693,840)	(213,435)	(131,680)	(125,610)	(1,164,565)		(387,350)	(1,551,915)
Capital Investment	\$3,887,795	\$3,507,950	\$4,148,880	\$7,635,480	\$19,180,105	\$4,163,250	\$23,343,355	
Percent Return on Investment	(17.8)	(6.1)	(3.2)	(1.6)	(6.1)		(9.3)	(6.6)

Notes: ^aOwnership Costs include depreciation of capital investment, insurance, and interest expense.

^bOverhead & Management Costs include return to operator for his labor at minimum wage, and on business costs.

^cParantheses indicate negative values.

Source: Harbridge House, Inc., estimate.

by \$23,615. This drop in the profitability of livestock ranches would reflect the relatively greater share of total AUM's, and therefore livestock sales, of subsistence size operations, which have higher relative costs than larger ranches. The drop is also due to large, new losses incurred by commercial ranches with reduced herds. These ranches would suffer a total decline of \$87,915 in livestock values and \$37,960 in net cash income. For the commercial cattle rancher, the proposed action would clearly create short-term economic hardship and financial uncertainty.

Because the initial cuts in permitted levels of grazing would be a temporary feature of the short-term, most ranch operators suffering losses as a result of the cuts would probably seek to continue in ranching until the range improvements and vegetative treatments which the federal government would undertake in the program interval could take effect. Most of the cuts would be restored by the early 1990's. In order to survive in business, ranchers would have either to cut costs and thereby increase their productivity, or to borrow the funds needed to cover projected losses, or to suspend operations for a period of five to ten years. Although an individual operator might be able to accomplish significant gains in productivity, by increasing the calving (or lambing) percentage or the selling weights of livestock, there does not appear to be a substantial margin for most ranchers in this regard. Moreover, some of the practices which might be used to increase ranch efficiency are costly, and would place additional demands on scarce capital. At the same time, the ranch operator's ability to borrow money would be affected by the official reduction from present authorized grazing levels to new, lower (and admittedly closer to actual) levels of permitted grazing on allotments. Overall, the loan valuation of livestock ranches would be cut by \$1.2 million, or more than 18.4 percent. Many ranchers would have difficulty just in meeting existing debt obligations, without borrowing further to continue operations. With outstanding loans valued at between \$2.2 and \$4.6 million, and with approximately eight to ten ranches having a high degree of indebtedness, it is unlikely that local financial institutions would increase their assistance or relax their requirements.

For many commercial cattle ranches, the necessary strategy for survival would probably have to include some short-term cut-back or suspension in operations.

In the long-term, all parts of the ranching economy would gain from the proposed action. As in the short-term, the greatest relative benefits would accrue to subsistence size cattle ranches and sheep ranches. Table 3.9 provides typical costs, receipts, and returns for livestock ranches using public lands in the San Juan Planning Unit in the year 2000, with the proposed action. For a typical cattle ranch with fewer than 75 AU's, net cash income would climb from the \$160 estimated in 1978, and the \$200 projected for 1982, to \$260, an increase of 62.5 percent over 1978 base. By contrast, a typical cattle ranch with more than 349 AU's would see net cash income rise by only 21.5 percent, from \$28,535 in 1978, and \$23,285 in 1982, to \$34,660 at the end of the century. The other types and sizes of ranches would register gains within this range. The cumulative effect of these different impacts would be to increase total livestock sales from these ranches by \$404,700, or 28.5 percent, from \$1,418,550 in 1978 to \$1,823,250 in 2000. Net cash income would be increased by 28.2 percent, or \$92,620, from \$328,465 in 1978 to \$421,085 in 2000. Return on investment would also improve over the 22 year period, but the improvement would be relatively slight--from negative 6.5 percent on average in 1978 to negative 6.2 percent at the end of the century. The total costs, receipts, and returns for 2000 are given in Table 3.10.

The projected drop in the market values of livestock ranches due to reductions in authorized federal AUM's would reduce property taxes assessed on those ranches. The projected increases in the herd size for ranches overall would increase property taxes assessed on animal units. Neither impact would involve more than 1 percent of local government revenues in the three-county area. Although total tax revenues would drop in the short-term and grow in the long-term, the change would be negligible compared to the anticipated growth in revenue collections as a result of further energy resource development in the region.

TABLE 3.9

TYPICAL COSTS, RECEIPTS AND RETURNS FOR LIVESTOCK RANCHES
USING PUBLIC LANDS IN PLANNING UNIT, BY SIZE
2000, WITH PROPOSED ACTION (in 1978 Dollars)

Budget Item	Cattle Ranches					
	Subsistence Size	Small	Medium	Large	Average, All Sizes	Sheep Ranches
		Commercial Size	Commercial Size	Commercial Size		
Livestock Sales	\$2,530.00	\$15,350.00	\$43,285.00	\$88,215.00	\$7,845.00	\$4,290.00
Operating Costs	2,270.00	12,770.00	31,285.00	53,555.00	5,880.00	3,805.00
Net Cash Income	260.00	2,580.00	12,000.00	34,660.00	1,965.00	485.00
Ownership Costs ^a	950.00	7,555.00	17,865.00	34,945.00	3,220.00	1,700.00
Net Business Income	(790.00) ^c	(4,975.00)	(5,865.00)	(285.00)	1,250.00	(1,215.00)
Overhead & Management Costs	3,380.00	6,760.00	8,095.00	9,275.00	4,035.00	5,070.00
Final Business Profit	(4,070.00)	(11,735.00)	(13,960.00)	(9,560.00)	5,290.00	(6,285.00)
Capital Investment	\$23,140	\$206,350	\$518,610	\$1,272,580	\$96,380	\$68,250
Percent Return on Investment	(17.6)	(5.7)	(2.7)	(0.8)	(5.5)	(9.2)
						(6.2)

Notes: ^aOwnership Costs include depreciation of capital investment, insurance, and interest expense.

^bOverhead & Management Costs include return to operator for his labor at minimum wage, and overhead on business costs.

^cParantheses indicate negative values.

Source: Harbridge House, Inc., estimate.

TABLE 3.10

TOTAL COSTS, RECEIPTS AND RETURNS FOR LIVESTOCK RANCHES
USING PUBLIC LANDS IN PLANNING UNIT, BY SIZE
2000, WITH PROPOSED ACTION (in 1978 Dollars)

Budget Item	Cattle Ranches						Sheep Ranches	All Types
	Subsistence Size	Small	Medium	Large	Total, All Sizes			
		Commercial Size	Commercial Size	Commercial Size				
Livestock Sales	\$ 425,040	\$ 260,950	\$ 346,280	\$ 529,290	\$ 1,561,560	\$ 261,690	\$ 1,823,250	
Operating Costs	381,360	217,090	250,280	321,330	1,170,060	232,105	1,402,165	
Net Cash Income	43,680	43,860	96,000	207,960	391,500	29,585	421,085	
Ownership Costs ^a	159,600	128,435	142,920	209,670	640,625	103,700	744,325	
Net Business Income	(115,920) ^c	(84,575)	(46,920)	(1,710)	(249,125)	(74,115)	323,240	
Overhead ^b & Management Costs	567,840	114,920	64,760	55,650	803,170	309,270	1,112,440	
Final Business Profit	(683,760)	(199,495)	(111,680)	(57,360)	(1,052,295)	(383,385)	(1,435,680)	
Capital Investment	\$3,887,795	\$3,507,950	\$4,148,880	\$7,635,480	\$19,180,105	\$4,163,250	\$23,343,355	
Percent Return on Investment	(17.6)	(5.7)	(2.7)	(0.8)	(5.5)	(9.2)	(6.2)	

Notes: ^aOwnership Costs include depreciation of capital investment, insurance, and interest expense.

^bOverhead & Management Costs include return to operator for his labor at minimum wage, and on business costs.

^cParantheses indicate negative values.

Source: Harbridge House, Inc., estimate.

3.3 No-Action Alternative

Under this alternative, no impact would occur to the social and economic conditions described in Chapter 2 for the three-county area. If a period of prolonged drought occurs, further decline of the local ranching economy and reduction in the size of the ranching population would occur, without the long-term benefits of the proposed action.

3.4 Elimination-of-Livestock-Grazing Alternative

This alternative would have a severely negative impact on the economic position of ranch operators dependent on grazing permits in the San Juan Planning Unit. Although, in terms of the total economy of the San Juan Basin such impact would be of minor importance, it would be felt far more by the operators involved. This alternative would reduce the ranching population by 58.9 percent, from 1,070 persons to 440. Of the total number of 260 operations utilizing allotments in the planning unit, 150 would be forced to close down, leaving 110 to continue. An estimated 175 ranch workers would have to seek new sources of employment and income, and an additional 180 workers in sectors closely tied to ranching would lose their jobs. The population and economy of rural communities would decline, and the concentration of population and economic activity in urban areas like Farmington would be increased. In addition, social and psychological problems would occur among the ranching population; ranch operators and workers who have a specific love of and skills for ranching would have to seek new and different jobs. The basic attitudes and values of the ranching population would be subjected to strong pressures in their new urban and industrial environments.

Average herd sizes would be cut from an overall average of 43 in 1978 to 11 in 1982 (compared to 44 in 1982 under the proposed action). Of the 110 remaining ranches, only 9 (8 cattle ranches and 1 sheep ranch) would be larger than 74 AU's in size (refer to Tables 3.11 and 3.12). Dependency on public lands for livestock forage would of course drop to zero, as shown in Table 3.13. Total livestock sales would drop from \$1,418,550 in

TABLE 3.11

AVERAGE HERD SIZES OF RANCHES DEPENDENT ON PUBLIC LANDS IN SAN JUAN PLANNING UNIT
1978, 1982, AND YEAR 2000, UNDER PROPOSED ACTION AND ALTERNATIVES

Ranch Type and Size	Baseline	PAL/ Year		EORV Year		MLFP Year		ELG
	(1978)	1982	2000	1982	2000	1982	2000	1982 and Year 2000
Cattle, All	48	48	61	35	35	48	68	12
Subsistence	14	17	22	11	11	17	24	3
Small Commercial	112	98	127	84	84	98	156	35
Medium Commercial	268	267	328	199	199	267	362	73
Large Commercial	525	478	598	349	349	478	688	135
Sheep, All	25	33	36	20	22	33	46	6
All Ranches	43	44	55	32	32	44	63	11

Source: Harbridge House, Inc., estimate.

TABLE 3.12

SIZE GROUP DISTRIBUTION OF RANCHES DEPENDENT ON PUBLIC LANDS IN SAN JUAN
PLANNING UNIT, 1978, 1982 AND YEAR 2000, UNDER PROPOSED ACTION AND ALTERNATIVES

Ranch Type and Size	Baseline	PAL/ Year		EORV Year		MLFP Year		ELG
	1978	1982	2000	1982	2000	1982	2000	1982 and Year 2000
Cattle, All	199	200	201	200	200	200	202	87
Subsistence	168	166	163	177	177	166	160	79
Small Commercial	17	18	20	10	10	18	23	6
Medium Commercial	8	9	9	12	12	9	9	2
Large Commercial	6	7	9	1	1	7	10	0
Sheep, All	61	61	61	61	61	61	61	23
All Ranches	260	261	262	261	261	261	262	110

Source: Harbridge House, Inc., estimate.

TABLE 3.13

PERCENT DEPENDENCE ON AUTHORIZED USE OF PUBLIC LANDS IN SAN JUAN PLANNING UNIT
1978, 1982, AND YEAR 2000, UNDER PROPOSED ACTION AND ALTERNATIVES

Ranch Type and Size	Baseline	PA1/ Year		EORV Year		MLFP Year		ELG 1982 and Year 2000
	1978	1982	2000	1982	2000	1982	2000	
Cattle, All	49	42	48	34	34	42	50	0
Subsistence	55	49	55	37	37	49	57	0
Small Commercial	50	44	49	36	36	44	53	0
Medium Commercial	42	36	41	30	30	36	42	0
Large Commercial	48	40	45	31	31	40	49	0
Sheep, All	62	62	63	46	46	62	67	0
All Ranches	51	45	49	36	36	45	53	0

Source: Harbridge House, Inc., estimate.

1978 to \$145,960 by 1982, and net cash income would be cut from \$328,465 in 1978 to \$33,175 four years later, a drop of 89.9 percent (see Table 3.14). The 110 remaining operations would produce just over \$300 in net cash income each. All commercial ranches would need to go out of business and their properties sold or converted to other use. The loan valuation of ranches would be reduced by \$4.3 million, and depending on ranch size and the timing of cuts, ranch operators would default on outstanding loan valued at \$2.2 to \$4.6 million. Indirect impacts on financial institutions, especially local banks, would be extensive.

3.5 Maximization-of-Livestock-Forage-Production Alternative

The implementation of this alternative would have similar short-term impacts to those of the proposed action on social and economic conditions within the three-county area. However, the BLM would set long-term management objectives to achieve optimum carrying capacities on public lands, and the benefits to livestock ranches and the ranching population under this alternative would be significantly greater. The ranching population would grow by 44 to 52 persons, as a result of hiring by an estimated 11 additional commercial ranches. (These ranches would consist of what were, in 1978, subsistence-size operations, which would grow with increases in permitted grazing on public lands.) Expansion of ranching activity would be evident in all types and sizes of ranches. Overall, average herd size would rise from 43 AU's per ranch in 1978 to 63 in the year 2000 (whereas with the proposed action, the average at the end of the century would be 55 AU's--refer to Table 3.11). Under this alternative, commercial ranches would number 42 out of 262 in the year 2000 (compared to 38 out of 262 in that year under the proposed action--Table 3.12). Because of the additional number of Federal AUM's, percent dependence on authorized use of public lands would rise to 53 percent overall, compared to 51 percent in 1978 and 49 percent in the year 2000 under the proposed action.

Although the short-term economic hardship and financial uncertainty described for the proposed action would also result from this

TABLE 3.14

TOTAL LIVESTOCK SALES AND NET CASH INCOME OF RANCHES DEPENDENT ON PUBLIC LANDS IN SAN JUAN PLANNING UNIT, 1978, 1982, AND YEAR 2000, UNDER PROPOSED ACTION AND ALTERNATIVES

Action and Year Ranch Type and Size	Cattle, All	Cattle, Subsistence	Cattle, Small Commercial	Cattle, Medium Commercial	Cattle, Large Commercial	Sheep, All	All, Total
Baseline (1978)							
Livestock Sales	\$1,243,175	\$270,480	\$228,565	\$283,840	\$460,290	\$175,375	\$1,418,550
Net Cash Income	310,470	26,880	36,380	76,000	171,210	17,995	328,465
PA (1982)1/							
Livestock Sales	1,213,220	328,440	198,730	283,840	402,210	233,020	1,446,240
Net Cash Income	279,230	33,600	29,920	76,000	139,710	25,620	304,850
PA (Year 2000)							
Livestock Sales	1,561,560	425,040	260,950	346,280	529,290	261,690	1,823,250
Net Cash Income	391,500	43,680	43,860	96,000	207,960	29,585	421,085
EORV (1982 and Year 2000)							
Livestock Sales	875,580	212,060	166,765	196,750	300,005	154,315	1,029,895
Net Cash Income	193,035	20,715	23,100	39,935	109,285	15,740	208,775
MLPP (1982)							
Livestock Sales	1,213,220	328,440	198,730	283,840	402,210	233,020	1,446,240
Net Cash Income	279,230	33,600	29,920	76,000	139,710	25,620	304,850
MLPP (Year 2000)							
Livestock Sales	1,829,815	463,960	300,460	385,430	679,965	326,705	2,156,520
Net Cash Income	525,655	47,700	53,760	110,715	313,480	38,780	564,435
ELQ (1982 and Year 2000)							
Livestock Sales	296,990	57,725	66,885	68,135	104,245	41,715	145,960
Net Cash Income	51,755	5,440	7,370	59,520	29,425	3,750	33,175

Source: Harbridge House, Inc., estimate.

alternative, the long-term benefits in terms of ranch production, employment, and income would be significantly greater and would help to alleviate short-term costs to operators. This alternative would, on the average, produce higher authorized grazing levels in the year 2000 than existed in 1978. Consequently, in the long term, market values of livestock ranches would rise above present levels, and both ranch operators and financial institutions would have the assurance during the short term that initial declines in loan valuation would be reversed. Under this alternative, it is therefore more likely that ranchers would be able to renegotiate outstanding loans and obtain further assistance than they would under the proposed action. Furthermore, because cuts in permitted grazing levels would be restored over the course of the program interval, market values of livestock ranches would appreciate gradually after 1982, until by the mid-1990's they would equal 1978 figures and would provide operators with new equity. Ultimate gains in the market values of affected ranches would provide a basis for repayment of loans taken out during the short term.

In the long term, the economic position of livestock ranches with allotments in the planning unit would be strengthened by the implementation of this alternative. As shown in Table 3.14, total sales by these ranches would reach \$2,156,520 in the year 2000 under this alternative (compared to \$1,418,550 in 1978 and \$1,823,250 in the year 2000 under the proposed action). Net cash income to ranch operators would rise from \$328,465 in 1978 to \$564,435 at the end of the century. This latter amount of income would be \$143,350 (or 34 percent) more than under the proposed action. All ranch types and sizes would benefit.

Although the proposed action would have relatively greater benefits for subsistence and Indian operators, this alternative would have greater beneficial impacts for the commercial and Anglo operators. This alternative would increase net cash income to operators with fewer than 75 AU's by 9.2 percent over income under the proposed action, but would add 22.6 percent to the income of small-size commercial operators, 15.3 percent to medium-size commercial operators, and 50.7 percent to

large-size commercial operators. Because Anglos represent a large percentage of ranchers in the three commercial size groups, they would share in most of this additional benefit.

The increase projected for the largest size group would be sufficient to make these ranches, on the average, profitable as businesses, earning \$48,160 annually in final business profits (a 0.6 percent return on investment).

3.6 Enhancement-of-Other-Resource-Values Alternative

This alternative would cut ranch production, employment, and income in both the short term and the long term; unlike the proposed action, no direct benefits would accrue to the ranching population and the ranch economy from this alternative. Because it would cut average herd sizes of ranches (Table 3.11) and reduce the number of commercial medium- and large-size cattle ranches (Table 3.12), this alternative would not cause any increases in the ranching population, nor would it strengthen rural communities in the manner of the proposed action. Dependence on authorized use of public lands would be cut from an overall average of 51 percent to 36 percent (Table 3.13).

In the short term, total livestock values would fall \$388,655 from 1978 levels, whereas under the proposed action, these sales would rise by \$27,690. In the long term, sales would remain \$388,655 below 1978 totals, and would be less than with the proposed action (Table 3.14). This alternative would also cut the net cash income of ranch operators and their families by more than a third in the short term, compared to 7.2 percent under the proposed action. Reductions in average net cash income would occur for all ranch types and sizes, unlike the proposed action, under which subsistence-size cattle and sheep ranches would, on the average, experience gains over the short term. Under this alternative, short-term cuts would be perpetuated into the long term, diminishing ranch production and income, because the progressive increases in authorized numbers that would occur during the program interval under the proposed action would not take place under this alternative. Therefore, the same kinds of

adverse economic impacts which characterized the proposed action in the short term would also characterize implementation of this alternative.

Ranchers in all ethnic and racial groups would be deprived of income, leading to the abandonment of ranching by many individuals. It is estimated that approximately 10 to 15 ranchers not now primarily employed outside ranching would have to seek such employment. In addition, reductions in authorized grazing levels would decrease market values of ranches and jeopardize existing debt arrangements. It is estimated that the loan valuation of livestock ranches would be cut by \$1.5 million, forcing 15 to 20 ranches to renegotiate or to default on outstanding loans of \$2.2 to \$4.6 million. In the long term, this alternative would have many of the same kinds of socioeconomic impacts projected for the short term under the proposed action, but because these impacts would be both of large magnitude and of indefinite duration, they would be more severe. The enhancement of other resource values would be undertaken at severe cost to the ranching economy of the San Juan Basin.

APPENDIX A - REFERENCES

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APPENDIX B - CODED LISTING OF PERMIT-HOLDERS

PERMIT-HOLDER LIST CODES

INTRODUCTION: The list of all permittees in the San Juan planning unit is arranged alphabetically and is structured to show (1) area of residence, (2) ethnicity, and (3) herd size. The definitions of each of these three data sets are given in detail below and on the following pages.

AREA OF RESIDENCE: is indicated by a number which refers to a particular geographic area as described on the next three pages. Area of residence is given for the primary, year-round home of the permittee, and excludes ranch camps or headquarters which are not otherwise the principal domicile of the permit-holder. Records at the Farmington Area Office of the BLM and telephone directories were used to ascertain the location of a permittee's residence.

ETHNICITY: is indicated by a number between one and three corresponding to (1) Anglo, (2) Hispano, and (3) Navajo. Ethnic identity has been inferred from permittees' names or the allotment they hold. All permittees in the Largo Community Allotment, and other allotments held officially by the Navajo Nation, have been assumed to be Navajos. All other permittees having Spanish surnames have been assumed to be Hispanos. All other permittees having non-Spanish surnames have been assumed to be Anglo. Where field work showed that an inferred ethnic identity was in error, the correct ethnicity was substituted.

HERD SIZE: is indicated by a number between one and four corresponding to one of four size categories, namely (1) large commercial ranch with more than 349 animal units (AU's), (2) medium commercial ranch with 175-349 AU's, (3) small commercial ranch with 75-174 AU's, and (4) subsistence ranch with 1-74 AU's. Records of the Farmington Area Office of the BLM were initially used to ascertain herd sizes. Where field work showed that a recorded herd size was in error, the correct herd size was ~~in error~~ substituted.

HERD TYPE: is indicated by symbols (1) * cattle and horses, (2) mixed, (3) ⊕ sheep, and (4) ⊕⊕ sheep and goats.

NOTE: There is a total of 185 permit-holders. Of this total, 44 were contacted by Harbridge House personnel in the field. Interviews were confidential, and no list of interviewees is provided. Given the fact that only a portion of the total number of permittees were personally contacted, there is a possibility of error in the particular coding of individual permittees.

RESIDENCE AREA CODING

Area Residence Number	Permittee Residence Area	County of Residence	Communities Within Area
1	Fruitland- Waterflow	San Juan	Fruitland Kirtland Waterflow
2	Farmington	San Juan	Farmington Flora Vista
3	Bloomfield	San Juan	Bloomfield
4	Aztec	San Juan	Aztec Cedar Hill Riverside
5	La Plata	San Juan	La Plata
6	Blanco	San Juan	Archuleta Blanco Turley
7	Gobernador- Largo	Rio Arriba	Gobernador Largo Junction Largo Station
8	Huerfano- Nageezi	San Juan	Blanco Trading Post Carson Trading Post Escarbada Trading Post Huerfano Trading Post Kimbeto Nageezi Otis Trading Post
9	Lybrook	Sandoval/ Rio Arriba	Counselors Escrito Trading Post Lybrook
10	Colorado	Archuleta La Plata Montezuma	Allison Arboler Bondad Coriez Durango Ignacio Redmesa

Area Residence Number	Permittee Residence Area	County of Residence	Communities Within Area
11	New Mexico	All except Rio Arriba, San Juan Sandoval	--
12	All except Colorado and New Mexico	--	--

CODED LISTING OF PERMIT-HOLDERS

Permittee	Allotment(s)	Area of Residence	Ethnicity	Herd Size	Telephone
Archuleta, Charles	5087	6	2	4*	
Archuleta, Frank	5035c	6	2	4*	632-2175
Archuleta, Gene	5039c, 5049.3	6	2	4*	
Archuleta, Milton	5039c	6	2	4*	632-2253
Archuleta, Valentine	5039c	6	2	4*	632-2394
Archibeque, Cecilia	5031c	3	2	4*	
Archibeque, José Adelido	5031c	3	2	4*	632-2172
Archibeque, José Eutimio	5031c	3	2	4*	632-3439
Archibeque, Narciso Estate	5031c	3	2	4*	632-2107
Armenta, Rafaelita	5070.02	6	2	4*	
Armstrong, John	5083c	8	3	4 ^{⊕⊕}	
Arnold, Richard	5038, 5105	2	1	4*	
Arviso, Jack	5084	3	3	4 [◇]	632-3566
Atencio, Tony	5039c	6	2	4*	632-3265
Atkins, F.T. Estate	5122	9	1	4*	568-4480
Augustine, Nita	5083c	8	3	4 ^{⊕⊕}	
Bangert, Earl	5031c	3	1	4*	632-8210
Begay, Largo	5083c	2	3	4 [◇]	327-7939
Berry, H.C.	5112, 5118, 5119	11	1	1*	568-4422
Bixler, Fred	5104	7	1	3*	
Blackie, Jack	5083c	8	3	4 [◇]	
Blancett, Edward	5082	4	1	4*	334-2153
Blancett, Linn	5052.3, 5053	4	1	3*	334-6067
Blancett, Richard	5052.7, 5050.8 5081	4	1	1*	334-2240
Bolack, Tom	5129	2	1	4*	325-4275
Brown, A.K.	5014, 4037, 5045	10	1	2 [⊕]	
Brown, J.C.	5069, 5074	3	1	3*	632-3976h 325-4071r

Permittee	Allotment(s)	Area of Residence	Ethnicity	Herd Size	Telephone
Brown, Jessie	5132	1	1	4*	598-5650
Browning, Bob ^a	5032, 5138, 5139	2	1	2 [⊕]	327-9227
Cain, John ^b	5046	5	1	4 [◇]	334-9050
Candelaria, Pablo	5092, 5093.7, 5130	6	2	2*	632-2362
Candelaria, Jose'	5035c	3	2	4*	632-2004
Candelaria, Marvel	5058c	3	2	4*	632-2913
Canuto, Joe	5083c	8	3	4 ^{⊕⊕}	
Castiano, Jeanett	5083c	8	3	4 ^{⊕⊕}	
Chaffee, Rowland	5047	4	1	4*	
Chapman, Val	5111	12	1	4*	
Chapman, Ode	5121	2	1	4 ^{⊕⊕}	568-4444
Chavez, Frank	5083c	4	3	4	334-2709
Chavez, Lazaro	5039c	6	2	4*	632-3234
Chavez, Louis	5083c	8	3	4 ^{⊕⊕}	
Chavez, Silvianito	5035, 5039c, 5040, 5075, 5137	6	2	3*	632-2286
Chavez, Steven	5035c, 5039c, 5040	6	2	4*	632-2112
Chiquito, Leo	5083c	8	3	4 [⊕]	
Commenche, John	5083c	8	3	4 ^{⊕⊕}	
Cox, F. Vernon Estate	5036, 5071	12	1	3*	632-3198
Crane, R.A. & J.E.	5117	4	1	4*	334-6366
Crawford, J.M.	5029, 5031c	3	1	3*	632-3235
Dallas, Carl	5009.07	1	1	4*	325-9515
Dean, Jesse	5027	2	1	4*	
Decker, Austin	5026	10	1	2*	247-3273
Decker, James	5020	10	1	2*	247-4092
Deschenney, Danny ^c	5072	8	3	3 [⊕]	
Dustin, Al	5027, 5127	2	1	4*	325-9049
Engler, Richard	5058c	10	1	4*	
Espinosa, Enrique ^d	5060, 5061, 5100	7	2	2 [◇]	

General Information					Detailed Data				
ID	Name	Age	Gender	Occupation	Address	Phone	Email	Notes	Status
1001	John Doe	35	M	Engineer	123 Main St	555-1234	j.doe@email.com	Single	Active
1002	Jane Smith	28	F	Teacher	456 Oak Ave	555-5678	j.smith@email.com	Married	Active
1003	Robert Brown	42	M	Doctor	789 Pine Rd	555-9012	r.brown@email.com	Married	Active
1004	Emily White	22	F	Student	321 Elm St	555-3456	e.white@email.com	Single	Active
1005	Michael Green	38	M	Lawyer	654 Maple Dr	555-7890	m.green@email.com	Married	Active
1006	Sarah Black	30	F	Artist	987 Cedar Ln	555-2345	s.black@email.com	Single	Active
1007	David Lee	45	M	Manager	147 Birch St	555-6789	d.lee@email.com	Married	Active
1008	Lisa King	25	F	Writer	258 Spruce Ave	555-0123	l.king@email.com	Single	Active
1009	James Hall	50	M	Retired	369 Willow Rd	555-4567	j.hall@email.com	Married	Active
1010	Amanda Scott	20	F	Intern	470 Ash Dr	555-8901	a.scott@email.com	Single	Active
1011	Christopher Young	33	M	Developer	581 Hickory St	555-2345	c.young@email.com	Married	Active
1012	Michelle Adams	27	F	Designer	692 Sycamore Ave	555-6789	m.adams@email.com	Single	Active
1013	Kevin Baker	40	M	Analyst	703 Chestnut Rd	555-0123	k.baker@email.com	Married	Active
1014	Nicole Evans	24	F	Marketing	814 Walnut Dr	555-4567	n.evans@email.com	Single	Active
1015	Brandon Hill	37	M	Sales	925 Elm St	555-8901	b.hill@email.com	Married	Active
1016	Stephanie Green	29	F	HR	136 Maple Ave	555-2345	s.green@email.com	Single	Active
1017	Gregory White	48	M	Finance	247 Oak Rd	555-6789	g.white@email.com	Married	Active
1018	Heather Black	21	F	Research	358 Pine Dr	555-0123	h.black@email.com	Single	Active
1019	Timothy King	52	M	Operations	469 Cedar St	555-4567	t.king@email.com	Married	Active
1020	Angela Lee	26	F	Quality	570 Birch Ave	555-8901	a.lee@email.com	Single	Active
1021	Jonathan Scott	31	M	IT Support	681 Spruce Rd	555-2345	j.scott@email.com	Married	Active
1022	Karen Adams	34	F	Training	792 Willow Dr	555-6789	k.adams@email.com	Single	Active
1023	Benjamin Baker	41	M	Logistics	803 Ash St	555-0123	b.baker@email.com	Married	Active
1024	Christina Evans	23	F	Compliance	914 Hickory Ave	555-4567	c.evans@email.com	Single	Active
1025	Matthew Hill	46	M	Security	125 Sycamore Rd	555-8901	m.hill@email.com	Married	Active
1026	Olivia Green	19	F	Finance	236 Chestnut Dr	555-2345	o.green@email.com	Single	Active
1027	William White	55	M	Marketing	347 Walnut St	555-6789	w.white@email.com	Married	Active
1028	Victoria Black	28	F	Operations	458 Elm Ave	555-0123	v.black@email.com	Single	Active
1029	Christopher King	36	M	IT	569 Maple Rd	555-4567	c.king@email.com	Married	Active
1030	Isabella Lee	22	F	HR	670 Oak Dr	555-8901	i.lee@email.com	Single	Active

Permittee	Allotment(s)	Area of Residence	Ethnicity	Herd Size	Telephone
Espinosa, Joseph	5065	3	2	3 [⊕]	632-2377
Fassett, Delwin	5107,5115	10	1	1*	
Faver, Norman ^e	5028	2	1	3*	327-7014
Faverino, M.L.	5057	10	1	2*	
Ferrari, Derald	5031c	3	1	4*	632-2254
Flaherty, Eugene	5025.45	4	1	4*	334-2380
Florez, Joe	5035c	3	2	4*	632-3456
Foutz, Phil	5004	1	1	4*	598-5627
Francisco, Bertha	5083c	3	3	4 ^{⊕⊕}	632-8765
Francisco, Lydia	5083c	8	3	4 ^{⊕⊕}	
Garcia, Emilio	5103	4	2	4*	334-6077
Garcia, Joe	5083c	8	3	4 ^{⊕⊕}	
Gersbach, Olive	5133	1	1	4*	
Gomez, Celso	5059	7	2	1*	
Gomez, Frank ^f	5064,5135	7	2	2 [◇]	
Gonzales, Rumaldo	5031c	3	2	4*	
Gonzales, Seferino	5134	6	2	4*	632-8416
Gonzales, Virgil	5031c	3	2	4*	632-2211
Gurule, Chris	5039c,5086	6	2	4*	632-3174
Harmon, Rosa	5027.08	2	1	4*	
Harper, Eugene	5019	2	1	4*	
Harper, J.H.	5007	1	1	4*	325-2955
Harris, John ^g	5011	5	1	3*	325-5265
Harrison, Kee	5083c	8	3	4 ^{⊕⊕}	
Henderson, R.J.	5091	3	1	4*	632-2135
Henry, Frank	5083	8	3	4 ^{⊕⊕}	
Holmes, Graham ^h	5073,5078,5126	8	3	2 [⊕]	
Hottell, W.E.	5047.04	4	1	4*	334-2497
Huggins, Kenneth	5018.74	5	1	4*	325-2049
Huntington, Lawrence	5055	10	1	1*	
Ignacio, Jose ⁱ	5083c	8	3	4 ^{⊕⊕}	

Project No.	Location	Area (Acres)	Permit No.	Start Date	End Date
100-101
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100-150

Permittee	Allotment(s)	Area of Residence	Ethnicity	Herd Size	Telephone
Ignacio, Tom	5083c	8	3	4 ^{⊕⊕}	
Jacquez, Geneive	5039c, 5041.97	6	2	4*	
Jacquez, Toby	5030.20	4	2	4*	
Jacquez, Willie	5039c	3	2	4*	632-3126
Jaquez, John	5039c	6	2	4*	632-3126
Jose', Charlie	5083c	8	3	4 ^{⊕⊕}	
Kaime, Ed	5114	2	1	1*	325-4002
Kaime, Joe	5113	7	1	2*	568-4425
Keere, James	5024	4	1	4 [◇]	
Kendall, Dr. David	5054	10	1	4*	
Kendrick, Harvey	5022	4	1	4*	334-2907
Kennedy, Troy	5006	1	1	4*	598-5398
King, Rilia	5009.93	1	1	3*	
Larcher, Basil	5025.55	4	1	4*	
Largo, Lula Mae	5083c	8	3	4 ^{⊕⊕}	
Largo, Mary	5083c	8	3	4 [⊕]	
Lathan, John	5079	8	1	4*	
Lewis, Elsie	5083c	8	3	4 [⊕]	
Lobato, (Amador &) U.J.	5108, 5109, 5063	4	2	2*	334-3322
Lobato, Onofre	5051	6	2	4*	632-2294
Lujan, Vidal	5039c	6	2	4*	
Lohman, (J.A. &) F.G.	5031c	3	1	4*	632-3190
Lopez, Joe	5096	7	2	4*	
Lopez, Nellie	5083c	8	3	4 ^{⊕⊕}	
Lopez, Wilson	5083c	8	3	4 ^{⊕⊕}	
MacDonald, John	5124	9	1	4 [⊕]	568-4408
Mackey, Jack	5056.58, 5151	10	1	3*	
Mackey, Nelson	5056.42	10	1	3*	
Maestas, Alfredo	5120	9	2	4*	
Maestas, Ralph	5027.21	4	2	4*	325-4794
Martin, Donald	5031c	3	1	4*	632-2316
Martinez, Alice	5083c	8	3	4 [◇]	

Permittee	Allotment(s)	Area of Residence	Ethnicity	Herd Size	Telephone
Martinez, Amelia	5039c	6	2	4*	632-2218
Martinez, Eloise	5083c	8	3	4 ^{⊕⊕}	
Martinez, Sra. John	5083c	8	3	4 ^{⊕⊕}	
Martinez, Lewis	5083c	8	3	4 ^{⊕⊕}	
Martinez, Lino	5102	7	2	4*	
Martinez, Sam	5083c	2	3	4 ^{⊕⊕}	
Martinez, Willie	5083c	8	3	4 [⊕]	
Mayfield, Butch	5076	10	1	1*	
McCee, Roscoe	5010	2	1	4*	
McCabe, Stanley	5003,5005	1	1	2*	
Miller, (Herman &) Frank	5002	1	1	4*	598-5200
Mohr, Frances	5123	11	1	4*	
Montoya, F.F.	5016	5	2	1*	325-5397
Montoya, Pat	5094,5095	6	2	3*	632-2221
Muniz, Emilio	5039c	6	2	4*	632-3130
Munoz, Daniel	5089c	2	3	4*	325-1587
Munoz, Refugio	5041.03	6	2	4 [⊕]	
Munoz, Simon	5031c	3	2	4*	632-3159
Myer, M.T.	5015	5	1	4*	325-9057
Nickles, Lloyd & Thelma ⁱ	5017,5018	5	1	4*	325-2641
Pacheco, Chris	5039c,5106	6	2	1 [◇]	632-2366
Platero, Danny	5083c	8	3	4 ^{⊕⊕}	
Platero, Ruth	5083c	8	3	4 ^{⊕⊕}	
Prda, Arthur	5035c	3	1	4*	632-3546
Quintana, Arcenio	5058c	10	2	4*	
Quintana, Jose'	5058c	10	2	4*	
Quintana, Juan	5058c	10	2	4*	
Ramsey, Frank Estate	5090,5098	2	1	3*	325-3234
Raymond, Ned	5080,5083c	3	1	3 [◇]	632-2012
Robb, Arlo	5021,5033,5043	4	1	1 [⊕]	334-6729
Rodgers, Donald	5136	2	1	4*	
Rothlisberger, Ernest	5013	5	1	3 [◇]	325-4037

Date		Time		Location		Remarks	
1940-01-01	12	12	12	12	12	12	12
1940-01-02	13	13	13	13	13	13	13
1940-01-03	14	14	14	14	14	14	14
1940-01-04	15	15	15	15	15	15	15
1940-01-05	16	16	16	16	16	16	16
1940-01-06	17	17	17	17	17	17	17
1940-01-07	18	18	18	18	18	18	18
1940-01-08	19	19	19	19	19	19	19
1940-01-09	20	20	20	20	20	20	20
1940-01-10	21	21	21	21	21	21	21
1940-01-11	22	22	22	22	22	22	22
1940-01-12	23	23	23	23	23	23	23
1940-01-13	24	24	24	24	24	24	24
1940-01-14	25	25	25	25	25	25	25
1940-01-15	26	26	26	26	26	26	26
1940-01-16	27	27	27	27	27	27	27
1940-01-17	28	28	28	28	28	28	28
1940-01-18	29	29	29	29	29	29	29
1940-01-19	30	30	30	30	30	30	30
1940-01-20	31	31	31	31	31	31	31
1940-01-21	32	32	32	32	32	32	32
1940-01-22	33	33	33	33	33	33	33
1940-01-23	34	34	34	34	34	34	34
1940-01-24	35	35	35	35	35	35	35
1940-01-25	36	36	36	36	36	36	36
1940-01-26	37	37	37	37	37	37	37
1940-01-27	38	38	38	38	38	38	38
1940-01-28	39	39	39	39	39	39	39
1940-01-29	40	40	40	40	40	40	40
1940-01-30	41	41	41	41	41	41	41
1940-01-31	42	42	42	42	42	42	42
1940-02-01	43	43	43	43	43	43	43
1940-02-02	44	44	44	44	44	44	44
1940-02-03	45	45	45	45	45	45	45
1940-02-04	46	46	46	46	46	46	46
1940-02-05	47	47	47	47	47	47	47
1940-02-06	48	48	48	48	48	48	48
1940-02-07	49	49	49	49	49	49	49
1940-02-08	50	50	50	50	50	50	50
1940-02-09	51	51	51	51	51	51	51
1940-02-10	52	52	52	52	52	52	52
1940-02-11	53	53	53	53	53	53	53
1940-02-12	54	54	54	54	54	54	54
1940-02-13	55	55	55	55	55	55	55
1940-02-14	56	56	56	56	56	56	56
1940-02-15	57	57	57	57	57	57	57
1940-02-16	58	58	58	58	58	58	58
1940-02-17	59	59	59	59	59	59	59
1940-02-18	60	60	60	60	60	60	60
1940-02-19	61	61	61	61	61	61	61
1940-02-20	62	62	62	62	62	62	62
1940-02-21	63	63	63	63	63	63	63
1940-02-22	64	64	64	64	64	64	64
1940-02-23	65	65	65	65	65	65	65
1940-02-24	66	66	66	66	66	66	66
1940-02-25	67	67	67	67	67	67	67
1940-02-26	68	68	68	68	68	68	68
1940-02-27	69	69	69	69	69	69	69
1940-02-28	70	70	70	70	70	70	70
1940-02-29	71	71	71	71	71	71	71
1940-03-01	72	72	72	72	72	72	72
1940-03-02	73	73	73	73	73	73	73
1940-03-03	74	74	74	74	74	74	74
1940-03-04	75	75	75	75	75	75	75
1940-03-05	76	76	76	76	76	76	76
1940-03-06	77	77	77	77	77	77	77
1940-03-07	78	78	78	78	78	78	78
1940-03-08	79	79	79	79	79	79	79
1940-03-09	80	80	80	80	80	80	80
1940-03-10	81	81	81	81	81	81	81
1940-03-11	82	82	82	82	82	82	82
1940-03-12	83	83	83	83	83	83	83
1940-03-13	84	84	84	84	84	84	84
1940-03-14	85	85	85	85	85	85	85
1940-03-15	86	86	86	86	86	86	86
1940-03-16	87	87	87	87	87	87	87
1940-03-17	88	88	88	88	88	88	88
1940-03-18	89	89	89	89	89	89	89
1940-03-19	90	90	90	90	90	90	90
1940-03-20	91	91	91	91	91	91	91
1940-03-21	92	92	92	92	92	92	92
1940-03-22	93	93	93	93	93	93	93
1940-03-23	94	94	94	94	94	94	94
1940-03-24	95	95	95	95	95	95	95
1940-03-25	96	96	96	96	96	96	96
1940-03-26	97	97	97	97	97	97	97
1940-03-27	98	98	98	98	98	98	98
1940-03-28	99	99	99	99	99	99	99
1940-03-29	100	100	100	100	100	100	100
1940-03-30	101	101	101	101	101	101	101
1940-03-31	102	102	102	102	102	102	102

Permittee	Allotment(s)	Area of Residence	Ethnicity	Herd Size	Telephone
Salmon, Joe	5031c	3	1	4*	632-3210
Sanchez, Manuel	5035c	3	2	4*	632-3203
Sandoval, J.V.	5031c	3	2	4*	
Setzer, Irene	5083c	8	3	4 ^{⊕⊕}	
Sexton, Dewey	5048	4	1	4*	334-2452
Smith, Robert	5062	4	1	3*	334-9044
Sterling, Bruce	5077,5085,5110	2	1	3*	325-3125
Stock, Oliver	5002.25	1	1	4*	598-5185
Sullivan, Bruce	5070	10	1	2*	
Talley, Del	5012	5	1	4*	325-295
Thompson, Mary	5083c	8	3	4 ^{⊕⊕}	
Todecheene, Allen	5083c	8	3	4 ^{⊕⊕}	
Truby, Sra. Elizabeth	5116	7	1	3*	568-4405
Trujillo, Leonard	5035c	6	2	4*	632-3483
Trujillo, Prax	5067,5068,5099	2	2	3*	327-2853
Ulibarri, Elias	5088	7	2	4*	
Ulibarri, Ramon	5050	6	2	3*	632-2343
Valdez, Antonio	5031c	3	2	4*	632-2198
Valercia, Ben	5039c	6	2	4*	632-3265
Valesquez, Chris & Jose'	5049	6	2	4*	
Valesquez, Santiago	5044.70	6	2	4*	
Victor, Sam	5083c	8	3	4 ^{⊕⊕}	
Wallace, Mary	5008	10	1	3*	
Webb, Arthur	5097	3	1	3*	632-2350
Weto, Paul	5083c	8	3	4 ^{⊕⊕}	
Wheeler, Ralph	5001	1	1	3*	598-5102
Wheeler, Wilford	5034	1	1	4 [◇]	598-5148
Willeto, Charley	5083c	8	3	4 ^{⊕⊕}	
Willer, Vernon	5039c	6	1	4*	632-2219
Witt, Frances	5022	4	1	4*	334-2269
Yazzie, Joe	5083c	8	3	4 [⊕]	

Date		Description		Amount	
1890	Jan 1	Balance		100.00	
1890	Jan 15	Received from A. B.		50.00	
1890	Feb 1	Received from C. D.		25.00	
1890	Mar 1	Received from E. F.		75.00	
1890	Apr 1	Received from G. H.		100.00	
1890	May 1	Received from I. J.		150.00	
1890	Jun 1	Received from K. L.		200.00	
1890	Jul 1	Received from M. N.		250.00	
1890	Aug 1	Received from O. P.		300.00	
1890	Sep 1	Received from Q. R.		350.00	
1890	Oct 1	Received from S. T.		400.00	
1890	Nov 1	Received from U. V.		450.00	
1890	Dec 1	Received from W. X.		500.00	
1890	Dec 31	Total		2500.00	
1891	Jan 1	Balance		100.00	
1891	Jan 15	Received from A. B.		50.00	
1891	Feb 1	Received from C. D.		25.00	
1891	Mar 1	Received from E. F.		75.00	
1891	Apr 1	Received from G. H.		100.00	
1891	May 1	Received from I. J.		150.00	
1891	Jun 1	Received from K. L.		200.00	
1891	Jul 1	Received from M. N.		250.00	
1891	Aug 1	Received from O. P.		300.00	
1891	Sep 1	Received from Q. R.		350.00	
1891	Oct 1	Received from S. T.		400.00	
1891	Nov 1	Received from U. V.		450.00	
1891	Dec 1	Received from W. X.		500.00	
1891	Dec 31	Total		2500.00	

APPENDIX C - CHANGES IN PERMITTED GRAZING BY PERMIT-HOLDERS

Herd Type: Cattle & Horses

Ranch Size: Subsistence

Permit-holder	Present Authorized Use	Use w/ EORV-1980*	Use w/ EORV-2000*	Use w/ PA-1980*	Use w/ PA-2000*	Use w/ MLFP-1980*	Use w/ MLFP-2000*	Use w/ ELG*
Allison Ranch	60	60	60	0	0	0	0	0
Archibeque, Jose	91	32	32	40	61	40	61	0
Archibeque, Joe - Estate	71	25	25	31	48	31	48	0
Archibeque, Narcisco - Estate	51	18	18	22	34	22	34	0
Archuleta, Frank	152	47	47	47	52	47	52	0
Archuleta, Gene	130	46	46	86	138	86	150	0
Archuleta, Maclovio & Charles	415	134	134	269	391	269	552	0
Archuleta, Milton	128	34	34	64	125	64	140	0
Archuleta, Valentine	29	8	8	15	29	15	32	0
Armenta, Rafaelita	95	35	35	59	77	59	83	0
Arviso, Jack	828	153	153	306	440	306	534	0
Arnold, Richard	646	361	361	376	538	376	540	0
Atkins, F. F. - Estate	660	136	136	279	300	279	300	0
Allotment 5066	0	8	8	17	25	17	25	0
Bangert, Earl J.	20	7	7	9	14	9	14	0
Bixler, Fred	298	92	92	170	200	170	223	0
Blancett, Edward	600	89	89	126	300	126	300	0
Bolack, Tom	420	122	122	243	360	243	360	0
Brown, Jessie	48	41	41	41	48	41	48	0
Cain, John & Gene Holmes	320	41	41	81	125	81	154	0

*Note:

EORV = Enhancement of Other Resource Values
 PA = Proposed Action
 MLFP = Maximum Livestock Forage Production
 ELG = Elimination of Livestock Grazing

Herd Type: Cattle & Horses

Ranch Size: Subsistence

Permit-holder	Present Authorized Use	Use w/ EORV-1980	Use w/ EORV-2000	Use w/ PA-1980	Use w/ PA-2000	Use w/ MLFP-1980	Use w/ MLFP-2000	Use w/ ELG
Candelaria, Joe	33	30	30	30	34	30	34	0
Candelaria, Manuel	302	124	124	276	300	276	300	0
Chaffee, Rowand	838	235	235	477	776	477	1,140	0
Chapman, Odie & Val	756	315	315	308	463	308	463	0
Chavez, Lazaro	29	8	8	15	29	15	32	0
Chavez, Steven	291	213	213	247	333	247	336	0
Dallas, Carl	105	18	18	29	35	29	35	0
Dean, Jesse	60	13	13	25	28	25	28	0
Derrick C. Ranchs Inc.	636	232	232	332	336	332	664	0
Dustin, Al	522	148	148	297	342	297	342	0
Engler, Richard	332	136	136	304	330	304	330	0
Ferrari, Derald	51	18	18	22	34	22	34	0
Flaherty, Eugene	86	18	28	37	54	37	54	0
Florez, Joe	17	15	15	15	17	15	17	0
Foutz, Phil	432	137	137	135	288	135	288	0
Garcia, Emilio	48	2	2	4	10	4	10	0
Gersback, Olive	18	1	1	1	5	1	5	0
Gonzalez, Rumaldo	51	18	18	22	34	22	34	0
Gonzalez, Sefanno	72	1	1	4	8	4	8	0
Gonzalez, Vergil	71	25	25	31	48	31	48	0
Gurle, Chris	187	26	26	49	94	49	100	0
Harmon, Rosa	44	9	9	18	20	18	20	0
Harper, J. H.	765	133	133	276	500	276	500	0

Herd Type: Cattle & Horses

Ranch Size: Subsistence

Permit-holder	Present Authorized Use	Use w/ EORV-1980	Use w/ EORV-2000	Use w/ PA-1980	Use w/ PA-2000	Use w/ MLFP-1980	Use w/ MLFP-2000	Use w/ ELG
Hedges, Sara - Estate	276	103	103	207	220	207	229	0
Henderson, R. J.	528	138	138	276	528	276	559	0
Hottell, W. E.	26	7	7	15	24	15	36	0
Huggins, Kenneth	232	81	81	166	210	166	227	0
Jacquez, Fred - Estate	806	301	301	505	703	505	709	0
Jacquez, John	69	18	18	35	67	35	75	0
Jacquez, Toby	30	26	26	27	30	27	30	0
Keene, James	36	39	39	39	50	39	57	0
Kendall Associates, Inc.	510	77	77	180	327	180	408	0
Kendrick, Harvey	36	4	4	8	36	8	36	0
Kennedy, Troy & Associates	367	211	211	303	325	303	325	0
King, Rilia	1,395	234	234	382	465	382	465	0
Larcher, Clara - Estate	106	23	23	45	66	45	66	0
Lobato, Amador	480	293	293	351	396	351	411	0
Lohman, J. A. & F. G.	91	32	33	40	61	40	61	0
Maestos, Alfred & Sons	264	26	26	58	100	58	136	0
Maestos, Ralph	115	24	24	49	52	49	52	0
Martin, Donald	71	25	25	31	48	31	48	0
Martinez, Amelia	55	15	15	28	54	28	60	0
Martinez, J. Lino	312	0	0	145	168	145	188	0
McGee, Roscoe	657	169	169	338	419	338	419	0
Miller, Herman & Frank	96	50	50	94	122	94	122	0
Mohr, Frances	84	9	9	9	20	9	20	0

Herd Type: Cattle & Horses

Ranch Size: Subsistence

Permit-holder	Present Authorized Use	Use w/ EORV-1980	Use w/ EORV-2000	Use w/ PA-1980	Use w/ PA-2000	Use w/ MLFP-1980	Use w/ MLFP-2000	Use w/ ELG
Munoz, Emilio	82	22	22	41	81	41	90	0
Myer Enterprises, Inc.	88	105	105	223	240	223	271	0
Navajo Agricultural Products Industries	1,256	379	379	710	875	710	1,016	0
Navajo Tribe	8,336	1,893	1,893	3,661	4,980	3,664	5,112	0
Nickles, May Agnes	240	88	88	139	139	173	228	0
Nickles Bros., Inc.	81	28	28	58	74	58	80	0
Quintana, Arcenio	347	142	142	318	345	318	345	0
Quintana, Jose	271	111	111	249	270	249	270	0
Quintana, Juan	256	105	105	235	255	235	255	0
Ramsey, Frank - Estate	540	89	89	191	352	191	500	0
Rochlesburger, Ernest	312	0	0	0	0	0	0	0
Rodgers, Donald	153	16	16	16	20	16	20	0
Salmon, Joe	183	64	64	81	122	81	122	0
Sanchez, Manuel	17	15	15	15	27	15	17	0
Sandoval, J. V.	51	18	18	22	34	22	34	0
Sexton, Dewey	204	37	37	75	156	75	187	0
Sterling, Bruce	2,616	872	872	1,056	1,276	1,056	1,326	0
Stock, Oliver	286	150	150	281	366	281	366	0
Talley, Alvin - Estate	457	35	35	75	125	75	125	0
Treasure Rockhouse Ranches	528	146	146	243	348	243	437	0
Trujillo, Leonard	52	47	47	47	52	47	52	0
Trujillo, Max - Estate	1,312	136	136	283	470	283	482	0
Ulibarri, Elias	604	117	117	233	350	233	356	0

Herd Type: Cattle & Horses

Ranch Size: Subsistence

Permit-holder	Present Authorized Use	Use w/ EORV-1980	Use w/ EORV-2000	Use w/ PA-1980	Use w/ PA-2000	Use w/ MLFP-1980	Use w/ MLFP-2000	Use w/ ELG
Uliberri, Ramono	732	331	331	662	662	662	1,031	0
Valencia, Ben	55	15	15	28	54	28	60	0
Valencia, Thomas - Estate	69	18	18	35	67	35	75	0
Velasquez, Jose & Chris	324	135	135	269	269	269	315	0
Velasquez, Paul	39	19	19	20	38	20	43	0
Velasquez, Santiago	50	39	39	76	76	76	76	0
Wallace, Mary	689	179	179	316	407	316	407	0
West, Frances	132	19	19	38	108	38	108	0
Wheeler, Ralph	466	138	138	275	370	275	370	0
Wheeler, Wilford	133	79	79	158	160	158	160	0
Wilks, Vernon	29	8	8	15	29	15	32	0
Total	39,323	11,004	11,004	18,955	25,497	18,955	28,116	0
% Change	-	-72.0	-72.0	-51.7	-35.0	-51.7	-28.3	0

Herd Type: Cattle & Horses

Ranch Size: Small Commercial

Permit-holder	Present Authorized Use	Use w/ EORV-1980	Use w/ EORV-2000	Use w/ PA-1980	Use w/ PA-2000	Use w/ MLFP-1980	Use w/ MLFP-2000	Use w/ ELG
Blancett, Linn	864	261	266	489	621	489	718	0
Brown, J. C.	1,688	925	925	1,110	1,350	1,110	1,554	0
Candelaria, Eugolia	1,551	313	313	527	631	527	739	0
Chavez, Silvianito	1,057	327	327	602	741	602	742	0
Crawford, J. M.	1,127	483	483	547	904	547	904	0
Cox, F. Vernon	1,764	611	611	1,212	1,283	1,212	1,400	0
Esquible, Perfecto & Max	1,437	282	282	505	611	505	732	0
Espinosa, George	696	165	165	303	446	303	530	0
Harris, John & Sterling	916	2	2	90	180	90	292	0
Harris, Phil & Norman Faver	1,032	68	68	141	200	141	200	0
Lobato, U. J.	1,380	310	310	508	866	508	985	0
Mackey, Jack & Nelson*	2,220	1,269	1,269	1,702	1,733	1,702	2,590	0
Montoya, Pat	1,356	765	765	884	1,187	884	1,562	0
Munoz, Daniel	612	68	68	131	250	131	405	0
Smith, Robert	1,205	241	241	467	688	467	893	0
Truby, Harold - Estate	1,500	391	391	597	688	597	802	0
Webb, Arthur (Buster)	1,296	69	69	138	250	138	264	0
Total	21,701	6,550	6,550	7,953	12,629	9,953	15,312	0
% Change	-	-69.8	-69.8	-54.1	-41.8	-54.1	-29.4	-

Herd Type: Cattle & Horses

Ranch Size: Medium Commercial

Permit-holder	Present Authorized Use	Use w/ EORV-1980	Use w/ EORV-2000	Use w/ PA-1980	Use w/ PA-2000	Use w/ MLFP-1980	Use w/ MLFP-2000	Use w/ ELG
Fassett, Del	2,119	786	786	1,196	1,600	1,196	1,683	0
Gomez, Frank & Gene	2,531	427	427	854	1,150	854	1,333	0
Gomez Ranches, Inc.	2,964	480	480	812	1,100	812	1,307	0
Karme, Joe	6,100	2,941	2,941	3,161	4,300	3,161	4,372	0
Mayfield, J. F. & J. H.	3,726	822	822	1,559	2,050	1,559	2,331	0
McCabe, Stanley	1,490	792	792	1,151	1,097	1,151	1,242	0
Montoya Sheep & Cattle Co.	2,982	306	306	647	1,012	647	1,226	0
Sullivan, R. Bruce	4,645	1,695	1,695	2,897	3,751	2,897	4,055	0
Total	26,557	8,247	8,247	12,277	16,060	12,277	17,549	0
% Change	-	-68.9	-68.9	-53.8	-39.5	-53.8	-33.9	-

Herd Type: Cattle & Horses

Ranch Size: Large Commercial

Permit-holder	Present Authorized Use	Use w/ EORV-1980	Use w/ EORV-2000	Use w/ PA-1980	Use w/ PA-2000	Use w/ MLFP-1980	Use w/ MLFP-2000	Use w/ ELG
Berry, H. C.	17,732	3,073	3,073	4,878	6,450	4,878	9,058	0
Blancett, Richard	2,347	934	934	1,713	1,954	1,713	2,213	0
Decker, Austin	3,850	946	946	1,387	2,000	1,387	2,047	0
Huntington, Lawrence	4,168	1,309	1,309	1,916	2,800	1,916	5,684	0
Kaime, Ed	5,692	1,779	1,779	2,707	3,800	2,707	3,841	0
Pacheco, Chris	5,179	1,989	1,989	3,220	4,422	3,220	4,690	0
Total	38,968	10,030	10,030	15,821	21,426	15,821	27,533	0
% Change	-	-74.3	-74.3	-59.4	-45.0	-59.4	-29.3	-

Herd Type: Sheep & Goats

Ranch Size: All Sizes

Permit-holder	Present Authorized Use	Use w/ EORV-1980	Use w/ EORV-2000	Use w/ PA-1980	Use w/ PA-2000	Use w/ MLFP-1980	Use w/ MLFP-2000	Use w/ ELG
Brown, A. K.	2,341	909	909	1,794	1,940	1,794	3,137	0
Browning, B. & E. Hendrickson	1,882	674	674	1,372	1,547	1,372	1,688	0
Espinosa, Enrique	1,308	299	299	555	804	555	955	0
Largo Community	4,871	1,446	1,446	2,891	3,509	2,891	3,731	0
Lopez, Tony	252	53	53	108	204	108	234	0
McDonald, John	372	126	126	133	250	133	295	0
Montoya Sheep & Cattle Co.	2,292	430	430	860	1,000	860	1,166	0
Navajo Tribe	3,322	1,074	1,074	2,145	2,423	2,145	2,863	0
Robb Ranches, Inc.	2,189	1,006	1,006	2,019	2,032	2,019	2,445	0
Total	18,829	6,017	6,017	11,877	13,709	11,877	16,514	0
% Change	-	-68.0	-68.0	-36.9	-27.2	-36.9	-12.3	-

APPENDIX D - RANCH BUDGETS BY SIZE CATEGORY

With the exception of the figures shown for livestock sales, which are in number of head, the figures given in the following ranch budgets are in dollars. The four sets of figures for cattle ranches are those of the four respective size categories: subsistence (14 head); small commercial (112 head); medium commercial (268 head); and large commercial (535 head). The number of head for each size category represent averages for livestock ranching operations with allotments in the San Juan Planning Unit.

BUDGETED COSTS, RECEIPTS AND CASH RETURNS PER ANIMAL UNIT
(Given a Year-long Average Herd Size)

Per Animal Unit	Sheep -----Cattle (sizes by number of head)-----				
	All Sizes	14	112	268	535
<u>I. Investment Summary</u>					
Current Replacement Costs					
Livestock	397.83	397.76	399.09	401.39	405.31
Equipment	324.61	324.26	330.53	341.27	359.66
Tractors and Trucks*	123.63	124.31	111.85	90.50	53.95
Other Machinery*	6.81	6.85	6.14	4.91	2.81
Total	852.88	853.18	847.61	838.07	821.73
Average Acquisition Costs					
Livestock	397.83	397.76	399.09	401.39	405.31
Equipment	142.16	142.04	144.30	148.17	154.80
Tractors and Trucks*	70.59	70.98	63.87	51.67	30.81
Other Machinery*	3.89	3.91	3.50	2.80	1.60
Total	614.47	614.69	610.76	604.03	592.52
*Full investment cost					
<u>II. Variable Costs</u>					
Private Range	0.00	0.00	0.00	0.00	0.00
Public Range	21.90	21.93	21.45	20.62	19.21
Protein Supplement	0.00	0.00	2.18	6.61	14.20
Grain	0.00	0.00	1.09	0.83	0.39
Legume Hay	12.45	12.50	11.51	9.82	6.94
Hay	1.07	1.08	0.95	0.71	0.32
Silage	7.15	7.23	5.90	3.63	0.00
Salt & Minerals	1.57	1.57	1.57	1.56	1.55
Vetinarian & Medical	1.86	1.87	1.77	1.59	1.29
Marketing	2.18	2.19	2.07	1.86	1.50
Hauling	1.04	1.03	1.12	1.27	1.54
Range Improvement	0.60	0.60	0.60	0.60	0.60
Machinery, Fuel & Lube	7.45	7.47	7.05	6.32	5.08
Machinery Repair	7.56	7.58	7.13	6.37	5.06
Equipment Repair	2.20	2.20	2.24	2.29	2.38
Livestock Labor	33.21	33.28	32.00	29.80	26.05
Interest on Operating Capital	2.92	2.93	2.86	2.74	2.53
Total*	103.16	103.46	101.49	96.62	88.64
<u>III. Income Above Variable Costs</u>	12.14	11.56	18.55	32.03	54.75
<u>IV. Ownership Costs</u>					
Replacement, Taxes, Interest and Insurance					
Machinery	12.34	12.88	11.64	10.38	8.21
Equipment	21.32	21.31	21.50	21.82	22.37
Livestock	33.68	33.68	33.73	33.82	33.97
Land Taxes	0.56	0.56	0.59	0.65	0.76
Total*	67.90	67.93	67.46	66.67	65.3

Sheep -----Cattle (sizes by number of head)-----

Per Animal Unit	All Sizes	14	112	268	535
II					
V. <u>Other Costs</u>					
Miscellaneous					
Land Charge	18.90	18.83	20.09	22.06	25.44
General Farm Overhead	5.23	5.24	5.15	4.98	4.70
Management Chrg	<u>12.30</u>	<u>12.31</u>	<u>12.11</u>	<u>11.75</u>	<u>11.15</u>
Total	36.43	36.38	37.35	38.79	41.29
VI. <u>Total of Above Costs</u>	207.49	207.77	206.30	202.08	195.34
VII. <u>Production</u>					
Number of:					
Steer Calves/Lambs	(15)	(14)	(28)	(53)	(96)
Heifer Calves/Lambs	(12)	(5)	(20)	(45)	(89)
Feeder Steers	--	--	(2)	(41)	(106)
Feeder Heifers	--	--	(2)	(14)	(35)
Cull Cows/Ewes	<u>(5)</u>	<u>--</u>	<u>(11)</u>	<u>(32)</u>	<u>(68)</u>
Total Receipts/Unit	115.30	115.02	120.04	128.65	143.39

APPENDIX E - ~~PERCENT~~ CHANGE IN RANCH BUDGET ITEMS

costs and receipts columns of the
The figures given in the following tables are in all instances dollars.
Dollar values shown are per animal unit (given a year-long average herd
size).

Percent Change From Av. Herd Size	Variable Costs	Ownership Costs	Other Costs	Receipts
+ 90	102.61	67.79	36.63	116.43
+ 80	102.67	67.81	36.61	116.28
+ 70	102.74	67.82	36.58	116.13
+ 60	102.80	67.83	36.56	115.98
+ 50	102.87	67.85	36.53	115.83
+ 40	102.93	67.86	36.51	116.59
+ 30	103.00	67.87	36.48	115.55
+ 20	103.06	67.89	36.46	115.41
+ 10	103.13	67.90	36.43	115.27
-----	103.19	67.91	36.41	115.13
- 10	103.26	67.92	36.39	114.99
- 20	103.35	67.93	36.36	114.85
- 30	103.42	67.95	36.34	114.71
- 40	103.48	67.96	36.31	114.57
- 50	103.55	67.97	36.29	114.43
- 60	103.61	67.99	36.26	114.28
- 70	103.68	68.00	36.24	114.13
- 80	103.74	68.01	36.21	113.98
- 90	103.81	68.03	36.19	113.83

~~PERCENTAGE~~ CHANGE IN PER ANIMAL UNIT COSTS AND RECEIPTS FOR A TYPICAL
SUBSISTENCE SIZE RANCH, BOTH CATTLE AND SHEEP

Figures shown are those calculated using a linear regression based on data of Economics, Statistics and Cooperatives Service of the U.S. Department of Agriculture, as verified in the field.

Percent Change From Av. Herd Size	Variable Costs	Ownership Costs	Other Costs	Receipts
+ 90	98.36	66.95	38.23	125.60
+ 80	98.65	67.01	38.13	124.98
+ 70	98.93	67.06	38.03	124.36
+ 60	99.22	67.12	37.93	123.75
+ 50	99.51	67.18	37.83	123.13
+ 40	99.80	67.23	37.72	122.51
+ 30	100.08	67.29	37.61	121.89
+ 20	100.37	67.35	39.50	121.28
+ 10	100.66	67.40	37.39	120.66
----	100.95	67.46	37.28	120.04
- 10	101.24	67.52	37.17	119.42
- 20	101.53	67.57	37.06	118.80
- 30	101.82	67.63	36.95	118.19
- 40	102.10	67.69	36.84	117.57
- 50	102.39	67.74	36.73	116.95
- 60	102.68	67.80	36.63	116.33
- 70	102.97	67.86	36.53	115.72
- 80	103.25	67.91	36.43	115.10
- 90	103.54	67.97	36.33	114.48

~~PERCENTAGE~~ CHANGE IN PER ANIMAL UNIT COSTS AND RECEIPTS FOR A TYPICAL
SMALL COMMERCIAL SIZE RANCH, CATTLE

Percent Change From Av. Herd Size	Variable Costs	Ownership Costs	Other Costs	Receipts
+ 90	90.72	65.45	41.14	141.97
+ 80	91.41	65.59	40.88	140.49
+ 70	92.10	65.72	40.52	139.01
+ 60	92.79	65.86	40.36	137.53
+ 50	93.48	65.99	40.10	136.05
+ 40	94.17	66.13	39.84	134.57
+ 30	94.86	66.26	39.58	133.09
+ 20	95.55	66.40	39.32	131.61
+ 10	96.24	66.53	39.06	130.13
-----	96.93	66.67	38.80	128.65
- 10	97.62	66.81	38.54	127.17
- 20	98.31	66.94	38.28	125.69
- 30	99.00	67.08	38.02	124.21
- 40	99.69	67.21	37.76	122.73
- 50	100.38	67.35	37.50	121.25
- 60	101.07	67.48	37.24	119.77
- 70	101.76	67.62	36.98	118.29
- 80	102.45	67.75	36.72	116.81
- 90	103.14	67.89	36.46	115.33

~~PERCENTAGE~~ CHANGE IN PER ANIMAL UNIT COSTS AND RECEIPTS FOR A TYPICAL
MEDIUM COMMERCIAL SIZE RANCH, CATTLE

Percent Change From Av. Herd Size	Variable Costs	Ownership Costs	Other Costs	Receipts
+ 90	86.21	65.05	63.26	185.75
+ 80	86.64	65.07	61.45	182.24
+ 70	87.06	65.09	59.64	178.74
+ 60	87.49	65.11	57.83	175.23
+ 50	87.92	65.14	56.02	171.73
+ 40	88.35	65.16	54.21	168.22
+ 30	88.78	65.18	52.40	164.72
+ 20	89.20	65.20	50.59	161.21
+ 10	89.63	65.23	48.78	157.71
----	90.06	65.25	46.97	154.20
- 10	90.49	65.27	45.16	150.69
- 20	90.92	65.30	43.35	147.19
- 30	91.34	65.32	41.54	143.68
- 40	91.77	65.34	39.73	140.18
- 50	92.20	65.36	37.92	136.67
- 60	92.63	65.39	36.11	133.17
- 70	93.06	65.41	34.30	129.66
- 80	93.48	65.43	32.49	126.16
- 90	93.91	65.45	30.68	122.65

~~PERCENTAGE~~ CHANGE IN PER ANIMAL UNIT COSTS AND RECEIPTS FOR A TYPICAL
LARGE COMMERCIAL SIZE RANCH, CATTLE

